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The Journal
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American Pharmaceutical Association

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ALSO AN
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FOR THE A. PH. A. RECIPE BOOK

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A. PH. A. RECIPE BOOK

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INDEX OF PHARMACEUTICAL FORMULAS

PROPOSED FOR A. Ph. A. RECIPE BOOK

This index contains the proposed Formulas thus far published in The Journal A.Ph.A., beginning with February, 1912, up to and including December, 1916.

The Roman numerals i and v refer to volume i and v of the Journal for the years of 1912 and 1916, respectively. In order to make this Index as complete as possible and of value to the members of the A. Ph. A. a great many cross references are listed besides the titles.

Inasmuch as a complete list of preparations deleted from U. S. P. VIII and N. F. III, which are to be included in the Recipe Book, has been published in the J. A.Ph.A. for November, 1916, pp. 1265 to 1267, these titles are *not* listed in this Index.

Suggestions and criticisms are always welcomed by the Chairman,

Otto Raubenheimer, Brooklyn, N. Y.

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January 3, 1816—January 24, 1897.

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Author of "Handbuch der Pharmazeutischen Praxis," etc.
Founder and Editor of "Pharmazeutische Centralhalle."

Dr. H. Hager

JOURNAL OF THE
AMERICAN
PHARMACEUTICAL
ASSOCIATION

VOL. V JANUARY, 1916 NO. 1

THE CENTENARY OF HERMANN HAGER.

THE high rank as pharmacist of Dr. Hans Hermann Julius Hager suggests a tribute to his memory in the pages of this issue, for the third day of January marked the one hundredth anniversary of this distinguished German pharmacist's birth.

Dr. Hans Hermann Julius Hager, the son of an army physician and surgeon, Dr. Johann Heinrich Hager, was born in Berlin, Germany. He entered pharmacy, April 1, 1832, as an apprentice in the Loewen-Apotheke at Salzwedel, where he very early evidenced his love for the profession of pharmacy and striking adaptation for the life-work he had chosen. Without attending the university, he passed the State Board of Examiners in Pharmacy at Berlin and was credited with the mark, "very good."

In 1843, Dr. Hager purchased the Stadtapotheke in Fraustadt, of which he was the owner until 1860, when he moved to Berlin. During the seventeen intervening years as "Apotheker" in Fraustadt, Hager devotedly applied himself to his profession and contributed largely to pharmaceutical literature. Before removing to Berlin, he established the *Pharmazeutische Centralhalle,* and retained editorial management until 1879. After the conclusion of the first year's issuance of the pharmaceutical weekly, Dr. Hager introduced the annual messenger, *Der Pharmazeutische Kalender,* to the German profession. His immediate connection with these two valuable publications terminated about the time when he completed the first edition of *Handbuch der Pharmazeutischen Praxis,* the recent revision of which has appeared in three stately volumes.

The preparatory work for the first edition of his masterpiece was done in his country home, *Pulvermuehle,* in the pine forests near Fuerstenberg, where he lived until 1881, when he moved to Frankfurt, and the last year of his simple but successful life was spent in Neu-Ruppin.

The University of Jena conferred upon him the degree of Ph.D., and he was also the recipient of the honorary degree of M.D. from the medical faculty of the same institution. Many pharmaceutical and related associations and other organizations expressed their recognition of his valued services by memorials and honorary membership; several in this country among them, and, quite naturally, the American Pharmaceutical Association.

He was an honor to pharmacy and an inspiration to pharmacists; in his masterwork pharmacists have a guiding light and an illuminating book of reference.

E. G. E.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

WILL PHARMACY PROFIT BY THE LESSONS OF 1915?

IN the year that has passed every branch of the drug trade in this country has been subjected to unparalleled stress and strain. Never before in the history of American pharmacy has there been a more critical period, and never before has the dependency of this country upon foreign countries for drug supplies been more strikingly exhibited.

Unprecedented fluctuations in prices have occurred not only in European drugs, but also in those of every other country, including our own. Some drugs are now unobtainable and more will be, as time progresses, regardless of the existence of war or peace.

These experiences should impress us that there is a real need of extended coöperation, not only within the very complex drug trade, but reaching out practically to every allied industry. They should stimulate us as pharmacists to utilize to the uttermost the possibilities that are within our grasp. Especially is this true of the members of the American Pharmaceutical Association, who are the leaders of American pharmacy. What we should do to-day is to coördinate all the various drug activities in coöperative endeavor.

We are in a position to discover, if this has not been done, what we need to make us less dependent upon the sources of drug and chemical supply from which we are now cut off. The demand for foreign materia medica products will be materially reduced, and, if our attention is specifically directed, we may find in this country additional valuable drug plants. Certainly some of the important medicinal plants can be successfully cultivated here, as has been demonstrated by the United States Government and by private enterprise.

The manufacturers of chemicals have the opportunity of a generation; and in this connection there is an imperative need for a radical revision of our patent and trade-mark laws, with special reference to the subject of product-patents.

And with all of this, American research must be strongly encouraged; the neglect of this is, at least, one of the chief causes of the inconveniences we are now experiencing. We cannot hope, nor would it be desirable, to become entirely independent of other countries for our supplies, for we must continue to buy from them, so that we shall have the opportunity of trading with them.

But in shaping profitable trade relations with foreign countries we should have scientific tariff regulations and anti-dumping legislation not adapted for political purposes; framed for the fair, reasonable, and rational protection and development of our industries; for diversifying and accentuating the talents and genius of the whole people.

That which applies to schools where training in chemistry is the only purpose obtains to an equal degree with schools of pharmacy. Research work must be extended to render a greater and more efficient service for pharmacy. The manufacturing industries, as well as retail pharmacists, must keep in close touch with the schools, for, after all, the training and education offered in the schools are preparatory to pharmaceutical activities. The work should be done not only for the purpose of obtaining knowledge, but also for its practical applications.

Drug gardens should be developed not only for the education of the student in plant life, etc., but also to devise practical methods for the successful commercial cultivation of plants. The same thought may be applied also to the student-work of all our laboratories.

Finally, this thought—pharmacy and its related activities should work together in developing materia medica along rational lines for efficient service rather than for exploitation to derive personal profit. Let us appropriate the lessons of our recent experiences for the betterment of our business and profession. Let us take full advantage of the wonderful opportunities that are knocking at our doors. Let us encourage research work to the uttermost. And let us, as members of the American Pharmaceutical Association, do everything in our power to promote the growth and development of our own drug industries, both by organization and work on the part of our membership and by coöperation with allied interests, to the end that the constructive development of American pharmacy may be worthy of the age we live in, and the opportunities that are now before us.

E. G. E.

QUESTIONS AWAITING YOUR ANSWERS.

HAVE you given thought to the fact that *your* State Association will meet *this* year? Are you preparing to promote the work your Association was organized for? Will you help strengthen its membership, support those elected by you to guide the destinies for this year? Do you know the American Pharmaceutical Association will meet in August, in Atlantic City, and that you can, *if you will,* add others to the membership and thereby make better service possible?

The American Pharmaceutical Association will convene in August, and it is not too early to give the next annual meeting serious thought now, for the intervening months will pass by just as quickly as those that have already gone. The chairmen of the various sections should outline their programs and enlist the interest of contributors of papers. Those papers that the chairmen desire to have printed in advance should reach General Secretary William B. Day sixty days prior to the meeting. Every paper should be accompanied by a concise abstract, and no one is better qualified for such work than the author.

Every member should study the needs of the Association and its opportunities, so that our hopes may advance toward realization and enable us to move the goal of our expectations forward. While the reward of association work is accomplishment, its continuance is stimulated by the knowledge that there are further opportunities.

The Association has for many years been giving more to the members than the receipts have warranted; the best solution of this financial problem, and one that is easily possible, is a larger membership. If every member would recognize the persuasion of others to affiliate with the Association as one of his duties, then the financial difficulties of the Association would readily be overcome and the members will share in better service. Increased membership also provides an augmented income for the Journal whereby the running expenses of the official publication are met. The desire of the Publication Committee is to have the Journal self-supporting, and the encouragement of the members along the lines indicated, and in making the advertising patrons satisfied with their investment, will be helpful.

Every member enjoys the same rights and privileges offered by the Association; the officers are simply servants whose duty is outlined by the Association, but whose opportunities for service are more or less promoted or impeded by fervid or frigid enthusiasm of the members.

The first of the year is always a good time for retrospection, looking forward and inward. Sufficient time has elapsed for recalling unnecessary resolutions, and now is the golden opportunity for replacing some of them by determinations that will benefit not only the Association but every member of it.

Let us have just one year wherein every one will do his level best to make the American Pharmaceutical Association stronger and more efficient. If so, we will never have cause for regret, and at the same time set a good precedent for succeeding years.

E. G. E.

VACCINATION AND ANTIVACCINATION.

WE present this editorial because the average laymen may be confused by the striking discrepancies between the claims for the protective influence of vaccination against smallpox made by the proponents of this procedure and the counter-claims made by its opponents; also because the subject was discussed at a recent meeting of the Philadelphia Branch, American Pharmaceutical Association.

The advocates of vaccination are made up of laboratory scientists, sanitarians, and about 98 percent of the medical profession. The opponents of vaccination in this country consist chiefly of laymen and laywomen and a handful of physicians, few of whom, if any, occupy positions as health officers or teachers in the universities or important medical schools. If one is to be guided by the opinion of experts and those who have had an opportunity of judging of the preventive influence of vaccination against smallpox, the choice is an easy one for those persons whose minds are open.

But there are those who may say that we want the evidence and not merely opinions from authoritative sources. The statistical evidence of the efficiency of vaccination is so overwhelming and so convincing that it is difficult to understand how any person with a mind receptive to evidential testimony can fail to be satisfied.

The history of smallpox in Germany from the time of the passage of the compulsory vaccination and revaccination law in 1874 to the present day stands as a Gibraltar of convincing evidence. Germany has stamped out smallpox as an epidemic disease—Russia still loses about 40,000 persons a year from this fell malady. One might write an entire book on the statistical side of the cases, but a careful study of the German figures suffices.

But the efficiency of vaccination is attested likewise by the almost universal testimony of physicians having experience with smallpox. It is, furthermore, indubitably proved by laboratory experiments which have the scientific weight almost of a chemical reaction. A monkey that is successfully vaccinated cannot thereafter be successfully inoculated with smallpox, although an unvaccinated ape takes the disease. Here is an experiment which can be carried out by any properly-qualified person and which yields results which prove conclusively the protective influence of vaccination. These results are completely corroborative of the work carried out by Jenner over a hundred years ago. He vaccinated a number of persons and found that such individuals could not thereafter take smallpox by inoculation. Furthermore, they remained immune against the disease contracted in the usual way throughout the period of Jenner's life. Later it was found that the protective effects of vaccination wore out in most persons after a period of years and required renewal. To minimize the importance of Jenner's discovery and charge him with a gross blunder because protection after a single vaccination did not last for life is unfair and foolish hypercriticism.

The argument that vaccination is a great evil and causes numerous deaths and innumerable diseases is a distortion and exaggeration of facts. Accidents and fatalities have occurred, but their number proportionate to the number of vaccinations carried out is infinitesimally small, and, however regrettable, they cannot weigh for a moment against the enormous number of lives saved by vaccination. Statistics show that from 1901 to 1904 inclusive 890 persons lost their lives in Philadelphia as a result of smallpox. If no one in this community had been vaccinated the deaths could readily have reached 8900 or more. The opponents of vaccination are sincere, zealous, and self-sacrificing and devote time and labor to their cause. No one can impugn their motives, but their activities tend to clog the wheels of progress, because they are false prophets. E. G. E.

THE HOUSE OF DELEGATES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

ABSTRACT OF THE MINUTES OF THE MEETINGS HELD IN SAN FRANCISCO, CAL., DURING THE WEEK OF AUGUST 9, 1915.

THE HOUSE OF DELEGATES.

Owing to the fact that the meetings of the House of Delegates were conducted in a rather informal manner, largely due to the absence of the regular officers and to the change in the time of the meetings, no attempt will be made to report the doings of this body in detail, but a general account of its proceedings will be given.

Unfortunately, in the arrangement of the general program, the fact that the meetings were to be held in an exhibition city, with many and varied attractions going on in the evening, seems to have been overlooked. The first session was slated for Monday evening at 7:30, when many of the delegates had just about started to eat dinner, and it was time for the Nominating Committee to meet, at 8:30, before a quorum could be gotten together, consequently there were comparatively few in attendance.

In the absence of President Richardson, ex-President Snow was requested to preside and Dr. Joseph Weinstein was elected secretary *pro tempore*. At the second session, Tuesday evening, very few delegates were present, and, when the meeting was about to convene, the hotel authorities stated that they must have the use of the room. A meeting was hurriedly called to order and Dr. J. H. Beal requested to take the chair, when a motion to adjourn until nine o'clock Friday morning was unanimously carried.

A fairly complete list of the organizations sending delegates to the American Pharmaceutical Association, which delegates were to form the House of Delegates, appears in the September number of the Journal, page 1037. The list of delegates in attendance at the convention were as follows:

Woman's Pharmaceutical Association of the Pacific Coast: Dr. Winslow, Miss Farrell, Mrs. Low.

N. Y. Deutscher Apotheker Verein: R. S. Lehman, H. V. Arny.

State Associations: F. W. Nitardy, Colorado; J. G. Godding, Massachusetts; F. J. Wulling, Minnesota; R. A. Lyman, Nebraska; Joseph Weinstein, W. C. Anderson, New York; Azor Thurston, Ohio; W. J. Teeters, Iowa; E. G. Eberle, Texas; H. P. Hynson, Maryland; C. M. McKillips, Oregon; C. Osseward, Washington; Philip Asher, Louisiana.

Schools of Pharmacy: J. H. Long, Northwestern University; Miss Zada Cooper, University of Iowa; W. C. Johnson, A. W. Linton, University of Washington; O. F. Claus, St. Louis College of Pharmacy; C. M. Snow, W. B. Day, University of Illinois; J. P. Remington, Philadelphia College of Pharmacy.

San Francisco Branch, A. Ph. A.: Mrs. White, J. L. Lengfeld.

Those taking active part in the deliberations were, principally, Messrs. Snow, Anderson, Weinstein, French, Beal, Hynson, Freericks, Dohme, Asher, Nitardy, Osseward, and Lyman.

There were but three definite conclusions arrived at by the House of Delegates this year.

1. The passing of a resolution, at the suggestion of the Denver Branch, which provided for the appointment of a committee to investigate the proper manner of pricing prescriptions and to suggest a system by which pharmacists may be guaranteed a living profit on this class of work.

2. The adoption of a resolution, at the suggestion of the Nashville Branch, endorsing the efforts of the American Medical Association in trying to have prescription writing fully taught in medical colleges.

3. The authorization of the appointment of a committee of five by the President of the House of Delegates to further consider the welfare of the body and suggest a definite plan by which its usefulness may be increased and its functions fully established.

Most of the discussions were upon the better organization of the body, upon the delegation to it of more power, and upon the advantages of giving it unrestrictive control of all business referred to it by the Association or the bodies sending delegates.

Chairman Hynson, of the special committee appointed last year to investigate the House of Delegates and to see if its usefulness could not be improved, stated that he had made diligent effort to get the sense of the members of his committee and to have them unite upon a report with suggestions. While admitting that he, himself, might be somewhat to blame, he had to confess that he did not feel that he could conscientiously endorse any report that would be of any possible interest or at all helpful that would be agreed to by the other members. He begged to be allowed to submit two forms of report, which he had offered his committee, simply as illustrating his views and for the purpose of bringing about further discussion upon the subjects in question during the coming year. He thought it would be wise to publish, in connection with these reports, the very carefully made comments of the other members of the committee, hoping that all this matter would prove interesting enough to warrant its publication. He also thought it would lend some assistance to those who would take up the work of defining the functions of the House of Delegates and of fixing its authority and scope of operations. These reports and the comments referred are as follows:[1]

REPORT OF SPECIAL COMMITTEE "TO INVESTIGATE THE HOUSE OF DELEGATES AND SEE IF ITS USEFULNESS COULD NOT BE IMPROVED." (FIRST FORM OFFERED.)

To the Members and Officers of the House of Delegates.

GENTLEMEN:

As some of you know, your Chairman has done his "little best" to render you helpful service, but at last feels that he must present for your consideration both a majority report and a minority report.

Mr. Apple, it is regretted, on account of ill health, has not been able to take part in the committee's work.

If the Chairman properly understands the kind of communications of Messrs. Freericks, Anderson, and Lemberger, the majority, he advises you that they consider the House of Delegates of no great importance to the Association, and the making of it a useful body a very difficult proposition. They are undoubtedly agreed that the present comprehensive and inclusive character of membership need not be changed or are in favor of its continuation. Each offers suggestions, in detail, for the conduct of the House.

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[1] "The House of Delegates of the A. Ph. A. (*In re* its betterment)" and "Additional Information Regarding the House of Delegates, A. Ph. A." They are printed in full in the April issue, pp. 524–527, and in the July number, pp. 844–849. The report of George M. Beringer, chairman of the Council Committee, *re* the House of Delegates, will be found in printed proceedings of the Council, pp. 1252–1254.

The majority report may be, therefore, summarized as follows: We recommend that the present form of by-laws for the House of Delegates be continued, and that its functions be defined and its conduct be controlled in accord with the suggestions submitted in our several communications, herewith submitted.

The minority respectfully requests the Association to act as follows:

1. To receive delegates from all foreign pharmaceutical societies, government departments, national medical societies at its first general session.

2. To receive all delegates from national drug and pharmaceutical organizations at some other general or special session until these bodies may become a part of the Association.

3. To discontinue to invite delegates from local Branches, since these have representation in the Council.

4. To discontinue to invite delegates from colleges of pharmacy and alumni associations of colleges of pharmacy, since these are represented in the Conference of Faculties, either directly or indirectly.

5. To assist in organizing the House of Delegates into a body made up exclusively of delegates from the several state associations and from similar associations of the District of Columbia, the territorial and insular possessions of the United States, provided that delegates are members of the A. Ph. A., in good standing, it being understood that all matters of strictly interstate concern shall be referred to such a House of Delegates for final action.

In support of such minority report, the communications from the Chairman to his colleagues and others and their replies to him are herewith submitted as a part of this report.

Respectfully submitted,

HENRY P. HYNSON.

F. H. Freericks.

GENTLEMEN:

First of all, I must ask Chairman Hynson's pardon for not sooner answering and discussing his clear statement of several months ago. Truly, my apparent inattention must be ascribed to a great mass of work of immediate concern, and to the very great difficulties of the problem which we are charged to solve.

It is our duty to investigate the present status of the House of Delegates, and to suggest if possible, plans for making it a real useful body. Our Chairman, having no doubt devoted a vast deal of thought to the subject, suggests a plan of reorganization, under which the House of Delegates would be constituted exclusively of representatives from the several state associations, and he then outlines a plan of activities for the body so constituted, involving a consideration of matters which are or should be of special interest to the associations of the different states, enabling them to become acquainted with progress separately made, and to discuss progressive measures which may have found separate approval, with a view of arriving at combined decision, as a ready method for carrying advantageous and desirable results secured in one state into other states. In an attempt to discuss the Chairman's proposal, and the subject matter itself, I would advance the following thoughts:

First.—It may be admitted without question that the House of Delegates has to this time performed little service. Whether this is entirely due or in part due to its plan of organization may at this point remain unanswered. It is certain, however, that no body, regardless of its plan of organization, can accomplish anything unless it has certain prescribed duties to perform and final authority pertaining thereto; that is, provided its functions are not purely educational, affording opportunity only to convey information and to permit discussion. It occurs to me that with duties to perform and powers to exercise the House of Delegates as at present constituted can be made efficient, if a House of Delegates as proposed by Dr. Hynson can be made worth while. In short, if the House of Delegates, as made up of representatives from state associations *exclusively,* is to have no specific duties to perform and no specific authority to exercise, then it will be quite as unsuccessful as is the present House of Delegates; whereas, if duty and authority are assigned, success under the present plan may be equal to the success to be secured under a plan of reorganization.

Second.—It seems to me that the Chairman would secure a general interest and worth-while results by impressing those who would constitute the House of Delegates with the exclusiveness and importance of their position. He would charge them with apparently grave responsibilities as measured by like restricted representation from only the recognized most important body of each separate state. He would compel an actual live interest by impressing each individual delegate with his exclusive rights and prerogatives, only to have them find, when assembled together, that they are on a level with a debating society, for they will have no right to decide upon anything, or rather their action on any question would not be the approved action of the Association, unless it subsequently have the endorsement of the Council or the Association itself. To me it seems utterly impossible to impress a body of men with the importance of their functions so as to create a real live interest, unless they can know that it has the responsibility, and that its action is final. To me it seems altogether indefensible to first bring a body of men together, because of the importance of their mission as evidenced by the restricted membership, and then to have them find that their every action is subject to revision and approval of another body, which is not nearly so representative.

Third.—Every question which can possibly be presented for discussion and enlightenment to a House of Delegates now has free and full opportunity for such discussion before the several Sections, and the light of progress can shine effectively out of said Sections. Therefore, a House of Delegates without fixed duties and without final power in a measure nearly duplicates the present Sections, differing principally in the fact that all of the various subjects which are now assigned to different Sections would be for discussion before one body. If only such result is to be accomplished, then it may be well accomplished by giving up the several Sections, and by simply having general sessions of the Association, at which the attendance has never been so great as to be unwieldy.

Fourth.—It must be admitted that the Chairman's proposal aims to go beyond what has just been stated. He would have the delegates from one state carry information on a given matter to the delegates of the other states, so that they might take such light home with them and spread it at home. It is undoubtedly true that the chances for accomplishing this are far greater when it presumably becomes the duty for specially appointed persons to do this, as against it being left to volunteers; but if it is merely a question of spreading the light, why not have it spread in as many places as possible, including not only state associations, but local associations as well?

Fifth.—If we would really make the House of Delegates an important body, which by its very importance and restrictions commands attention and interest, then we should make it the body of final jurisdiction,—in other words, the mouthpiece of the Association, being final with reference to all its activities. To do this would require an entire reorganization, and would practically make the American Pharmaceutical Association exactly like the American Medical Association.

First of all, it is doubtful whether pharmacy is better served by excluding the general membership from taking part in and helping to decide upon questions of vital concern. It certainly would have some tendency of making our annual meetings less attractive for those who do not come in a representative capacity. The pharmacists of the country, unlike the medical men, are more generally confronted with problems affecting their general status, which go beyond matters of educational and scientific advancement. To exclude the general membership from a direct voice in such problems will alienate their immediate interest in the Association and will keep them from its meetings. To have men selected as delegates by state associations whose membership is largely not affiliated with the American Pharmaceutical Association would thus put it in the power of those who have no direct concern to select men for governing the destinies of the Association. The duty of making such selections would thus be light-heartedly assumed, and the limited number to select from might result in having a House of Delegates largely made up of men who would not, for one reason or another, be selected to govern their own and far less important state association. Without provision to defray the expenses of such delegates, the selection would be sure to be made from among those who, first of all, have the means for making, frequently, extended trips, and, unfortunate as it may be, the fact is certain that such House of Delegates so constituted would be largely made up of members who are not engaged in retail pharmacy, and, far and above all, it is the retail pharmacist who should be attracted by the American Pharmaceutical Association, and it is the retail pharmacist who should have the most important voice in its activities. Therefore, I must conclude that a House of Delegates similar to that of the American Medical Association is at present out of the question, and on that account an entire reorganization of the American Pharmaceutical Association along that line is not now feasible; nevertheless, it would seem timely and proper to consider such entire reorganization, and to sound the various state associations on a plan which in some manner would make every state association member also a member of the American Pharmaceutical Association. In that connection, however, we must not leave out of mind the possibility of conflict with the National Association of Retail Druggists, which to-day largely has a relationship, rather indefinite with members of state associations.

Sixth.—Much as I would like to agree with the proposed change advocated by Chairman Hynson, I cannot under present conditions see any advantage to be derived therefrom, and this brings me back to consider what might be done, if anything, with the House of Delegates as at present constituted.

In order to meet the justified criticism of Chairman Hynson regarding the total lack of distinguishing between the more important state associations, I submit that a change might be made under which state associations would be entitled to three delegates, while local associations and Branches would be entitled to only one delegate each. In this connection I have in mind the aim and thought which at least in part was responsible for instituting the House of Delegates, which, if I understand correctly, was that an opportunity should be given to largely make those who attend the Association meetings feel that they have a place in its general arrangements.

Now then as to the functions for such a House of Delegates, to possibly make its sessions worth while and have them serve the purpose of spreading the light: Three months in advance of the annual convention, or possibly four months in advance, a request should be sent to each state and local association, and to each Branch, advising them of the desire that they be represented by delegates at the American Pharmaceutical Association Convention, and particular stress should be laid upon the desire that such delegates present resolutions deemed of importance by their associations, as concerning the progress and welfare of pharmacy in any direction. Request for such resolutions should be framed in an attractive manner, so as to be really an inducement for devoting the necessary time and thought in presenting important questions for nation-wide consideration. The by-laws governing the various Sections of the Association as now constituted should be changed so as to require that the various Sections have and complete their sessions by Thursday noon, the House of Delegates to commence its real work Thursday afternoon.

Each Section should be required to separate the most important proposals which have been presented at its various sessions, with such action as they may have taken relative thereto, and present them for consideration and discussion before the House of Delegates. Thus the House of Delegates, the membership of which would throughout the sessions be no doubt more particularly interested in one or two of the Sections, would have brought before them all the important matters and proposals which during the convention have found consideration in one place or another. They would be able to discuss and arrive at intelligent conclusions for themselves, and, on their return, to communicate them to the entire membership of their respective associations. While discussion at such meetings of the House of Delegates would be limited to its members, all of its sessions would be open to every one in attendance, and thus every one inclusive of the delegates might have a *résumé* of every important thing which has been brought up or which has transpired.

Most respectfully I submit these thoughts for consideration by our Chairman and the other members of the committee. I am not at all confident that the suggestions made will prove to be of good results if tried out, but I have just a little hope that it might be worth the trial.

W. C. Anderson.

GENTLEMEN:

I have given some thought to what I believe should be our principal object; namely, defining the functions of the House of Delegates, but must confess I have not been able, at an earlier date, to decide upon any constructive suggestions along these lines.

Membership is important, but membership without objects or duties can be of little avail.

The work of our committee would be made easy if we were dealing with a proposition that involved the formation of a new and separate organization, but to provide functions for an organization, within an organization already provided with sections that cover practically every phase of pharmacy, is a very different task.

As Chairman of our committee you have made a strong effort to provide for the House of Delegates a program that will be interesting and profitable, and still, with the exception of the provision for a Committee on Resolutions, an adopted policy of the House, every item on the proposed program properly belongs to existing sections of the American Pharmaceutical Association.

Every one of us has felt the loss to which we have been subjected because of one's inability to attend the sessions of all sections during our annual meetings, and we should carefully avoid having the House of Delegates increase this loss.

It has occurred to me, while attempts have been made to whip into proper form various resolutions presented to sections and at general sessions, that time might be saved by having a specific body handle such matters and bring them, in the best possible form, for final adoption.

I believe the House of Delegates, with a properly defined membership, could serve a splendid purpose along these lines.

Other duties will develop as its usefulness is demonstrated.

Joseph L. Lemberger.

GENTLEMEN:

I have been canvassing in my mind just what is the best thing to say the House of Delegates should really represent, as well as its province, and I have not changed my mind since the first impression at Detroit.

The House of Delegates should be an absolute body of delegates from the pharmaceutical associations of the continent and other associations affiliated with the pharmaceutical profession, such as the various branches of the American Pharmaceutical Association, and every delegate must be a member of the American Pharmaceutical Association or an applicant for membership at the annual meeting. The House of Delegates should have the first session for the purpose of receiving credentials and greetings that the delegates will bring from the body they represent, or any communications in the way of business or resolutions from such bodies. These should constitute the nucleus of the first overture or business that the House of Delegates will present to the first general session of the Association, and this business should be the first order after the President of the Association has made his address and the usual appointment of committees by the presiding officer of the Association.

The House of Delegates should convene daily at such time as not to interfere with the sessions of the Council or general sessions of the Association, and should be prepared with any matter of reference to the Council or the Association and the various Sections. In order to carry out this outlined plan, the associations should appropriate a sufficient sum to pay a stenographer and other help, if necessary, to expedite the business of the House of Delegates.

I have read the valuable report that you prepared and realize the great care you must have taken with it, as well as the sacrifice of time corresponding with so many persons connected with the Association. This last feature may have been a good thing, and yet, as I read them, the opinions are very varied. Your report, I believe, will receive careful attention, and I have extreme regret that I cannot be with you at San Francisco to support anything you may do that I can approve of, and I can generally approve of the very best you do.

In conclusion, the position I take may startle you and some other people, but a House of Delegates should be the representative body that an Association like our great body can use.

(SECOND FORM.)

To the Members and Officers of the House of Delegates:

Your committee ventures to express the opinion that the well-organized and effective local pan-pharmaceutic associations should be correlated through the organization of a permanent body of delegates, and that this body of delegates should be an integral part of the American Pharmaceutical Association.

Further, that no single division of territory should be represented by more than one set of delegates.

That membership in this body should be by organizations, and each organization should be entitled to two delegates at each meeting.

In case representation is held at any time by a subdivision of the territory, the whole of which is represented by a more comprehensive organization, the strictly local body should give way to the larger one, upon the application of the latter for membership.

That fraternal delegates from associations be received and given certain privileges, but should not be entitled to vote.

That the functions of the House of Delegates be, chiefly, to offer the different states an opportunity to get together on all pharmaceutical matters of mutual interest, the greater development of the several local associations, and the enlargement of the influence and helpfulness of the American Pharmaceutical Association in all sections, and to pharmacy as a united and comprehensive whole.

Subjects in detail, which might be profitably considered by such a delegate body, are as follows: Model Pharmacy Laws, Weight and Content Laws, and Poison and Labelling Laws, and general subjects that do not now belong to any of the Sections.

It is still further recommended that the House of Delegates should be made a part of the Association and not subject to the Council; that its officers should be elected as other officers of the Association are elected; that its actions may be subject to revision by the Association in general session, upon the written petition of any ten members of the Association.

It is further advised that upon the adoption of these recommendations a committee of five be appointed to formulate the sense of this body in the form of amended by-laws, subject to the endorsement of the House of Delegates at the next annual meeting and for adoption by the Association thereafter.

HENRY P. HYNSON, Chairman.

THE ELECTION OF OFFICERS.

After the transaction of all other business the House of Delegates proceeded to the election of officers, resulting as follows: Chairman, H. P. Hynson, of Baltimore; first vice-chairman, F. W. Nitardy, of Denver; second vice-chairman, Dr. Otto F. Claus, of St. Louis; secretary, Jeanott Hostmann, of New York.

After the election of officers the meeting adjourned.

The reasons for presenting these minutes in abstract have been stated at the beginning of this report. If any member should find any incorrections or omissions, the Editor would be pleased to have the corrections. At the same time he desires to express his thanks to Chairman Hynson for his assistance in compiling this report.

THE PANAMA-PACIFIC EXPOSITION.

At the close of the Panama-Pacific Exposition the eyes of the whole country once more turned to that wonderful city of beauty and grandeur that American enterprise and enthusiasm created near San Francisco. The final celebration on December 4 gave the last evidence of the wonderful achievement of the industry, diligence, and inventiveness of the world, and the productiveness and fertility of the various countries.

The Exposition now belongs to history, but there remains in our hearts, and in particular in the hearts of those who were privileged to visit it, the inspiration and influence that its grandeur and beauty created. The members of the American Pharmaceutical Association who went to the meeting in San Francisco can not but express once more the appreciation and heartfelt thanks for the generous hospitality of our brethren and their ladies.

Before the close of the Association, a letter was sent by the president, Charles C. Moore, to the presidents of the national scientific, economic, and industrial associations of the United States, asking for a contribution to the final ceremonies.

The following is the response from our president, Dr. William C. Alpers:

"In behalf of the American Pharmaceutical Association, and in the name of the pharmacists of the United States, I send you our heartiest greetings and congratulations. You have brought to a successful close one of the greatest enterprises in the interest of peace and the betterment of the human race.

"When, in the month of August, the American Pharmaceutical Association, representing the manufacturers, the teachers of colleges and universities, the pharmaceutical wholesalers, and the apothecaries of the United States, met in San Francisco, it was done primarily to pay tribute to this wonderful embodiment of world-progress in the peaceful arts, and every attendant looked with satisfaction and admiration on the achievement of American enterprise.

"Humble and unnoticed as the daily work of the pharmacist may be, it yet comprises a knowledge of a number of the sciences, and the threads that start in the small dispensing room lead to every part of the world. The thickets of little-explored countries, the depths of the mines in every land, the vastness of fields and plains, the unfathomed depths of the oceans, all contribute material for the daily work of the pharmacist, and the ingredients of a small prescription are often gathered from nearly every country of the globe.

"It is, therefore, with deep interest and a full recognition of its international value that the pharmacist walked through the avenues and halls of the Exposition, and viewed with astonishment and gratification the enormous progress made in all lines of his vocation.

"But more than that. To the inspection and admiration of what has been accomplished, the searching eye added the discovery of new fields and roads to further work. The thoughtful mind, recognizing what has been done all over the world, could not be closed to the fact that each new discovery, each new invention, each new development, is only the beginning of greater and more important work. Thus, this wonderful enterprise, like all preceding exhibitions of this kind, far from marking the end of finished work, rather opens new fields to the inventor and discoverer, and gives new subjects of thought to the thinker and philosopher.

"It is, therefore, with thankful gratification that the pharmacists of the United States join in these final exercises to proclaim to the world the wonderful achievement of thought and enterprise. But from our small and humble profession the eye takes a broader flight to the greater mission of this International Exposition that is now about to be closed. It will stand out more powerful and prominent than any other that came before, or any other that may come after. It demonstrated to the whole world that true progress and happiness lie in the works of peace alone, and that no betterment of the human race can be expected until the sword of battle has been sheathed. While the nations of Europe were engaged in a desperate struggle, the United States put forth this wonderful testimony of the accomplishment of the peaceful arts and sciences. The efforts of the human mind were here directed to build up and improve, not to destroy and devastate. In place of the wailings and heartrending cries of widows and orphans, we could raise the hallelujahs of industrial and commercial progress. Instead of destroying the works of art and science of former centuries, we pointed the way to further development, betterment, and happiness.

"Let, then, the spirit of international peace, that conceived, built, and successfully conducted this great Exposition, remain alive and active among us. Let us continue to be a nation of peaceful enterprise and purpose, and put before the world the shining example of brotherly love and harmony."

SCIENTIFIC SECTION

ROUTINE CLINICAL LABORATORY TESTS; THEIR DESCRIPTION AND SIGNIFICANCE.*

BY FRED. I. LACKENBACH, SAN FRANCISCO.

Clinical laboratory tests may be roughly classified as serological, histological, biological, cultural, microscopical, macroscopical, and chemical.

Of the serological tests, the complement-fixation tests for syphilis, known as the Wassermann test and the Noguchi modification of the Wassermann test, are employed very extensively. Other tests of similar nature are employed for determining the presence of gonorrhœa, cancer, and tuberculosis—the latter two, however, are of experimental interest only. Also still in the experimental stage are the Abderhalden tests for the serodiagnosis of pregnancy, cancer and dementia præcox. The scope of this paper is to deal briefly with such tests as are in common use and which have justified their diagnostic values.

The technic, briefly, of the Wassermann test as originally described consists of the following reagents: (1) The blood-serum or cerebrospinal fluid from the individual suspected to be infected; this is termed the *antibody* or *amboceptor.* (2) An alcoholic extract prepared from the liver of a syphilitic fœtus or other lipoid substance; known as the *antigen.* (3) Fresh guinea-pig serum for *complement.* (4) The serum of a rabbit immunized against sheep's red blood-corpuscles; known as hæmolytic or immune serum (hæmolytic amboceptor). (5) Sheep's red blood-corpuscles washed and suspended in normal saline solution. The first, second, and third substances, properly tested and standardized, are mixed in proper proportion and incubated for one-half hour at 37° C. Reagents (4) and (5) are mixed separately and added to the first mixture, the whole being incubated for another hour. Controls of known "negative" and "positive" serums are run at the same time as a check upon the test of the unknown serum. If the serum tested is "positive," no solution (hæmolysis) of the sheep's blood-corpuscles will occur and the fluid will remain cloudy; the antigen will have combined with the immune body present in the patient's serum, fixing at the same time the complement from the guinea-pig's serum. There is no complement present to bring about solution of the sheep's corpuscles. If the serum be "negative," complete hæmolysis or solution of the sheep's corpuscles will take place, since there is free complement to combine with the red cells and immune serum; the suspension therefore clears up. The Noguchi modification of the Wassermann test is preferred by some workers. In this test, instead of using sheep's red blood-corpuscles, human red blood-corpuscles are substituted, the supply being obtained from a finger-prick. The rabbit, instead of being immunized against sheep's corpuscles, is immunized against human red blood-corpuscles. In the Noguchi test a very small quantity of blood, drawn from the patient's finger or ear, is sufficient, while in the Wassermann test from 3 to 5 Cc. of blood is required. This is usually taken from one of the veins of the arm in front of the elbow.

These tests employed for the diagnosis of syphilis are quite reliable. There are several factors, however, which have a very important bearing upon the findings. The period of incubation of this disease is about three weeks, during which time no antibodies are circulating in the body fluids. A test of the patient's blood made at this time would most likely be negative. A few days later it might be strongly positive. A heavy meal, or alcoholic indulgence just before the specimen is taken, may make a positive serum negative. In the advanced stages of syphilis the blood may be negative owing to the elimination of the syphilitic antibodies in the course of the disease. In some instances the patient's spinal fluid will show positive, while the blood is negative. The administration of drugs—arsenic, mercury, or the iodides—is very likely to render a positive serum negative. On the other hand, the injection of a *provocative* dose of salvarsan may stir up a latent syphilitic infection and yield a positive serum where the diagnosis previously was indeterminate.

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* Read before the Scientific Section of the 63rd Annual Meeting of the American Pharmaceutical Association, San Francisco, August, 1915.

In the complement-fixation test for gonorrhœa the technic is essentially the same as for syphilis, except that the antigen employed consists of an extract of pure cultures of a dozen or more strains of gonococci.

The blood-serum yields another class of important tests, known as the agglutination tests. The Widal test for typhoid is typical of this group and is performed by adding to a fresh culture of the *Bacillus typhosus* or *paratyphosus* a drop of the suspected blood-serum. If the serum be positive, a characteristic clumping or agglutination of the bacteria will result. In a dilution of one part of culture to ten or twenty of salt solution, clumping should result in the course of one-half hour in positive serum. The spirillum of Asiatic cholera may also be determined by this method.

The cell count of the blood is of exceedingly great importance in diagnosis. A complete blood count consists of the estimation of the number of red cells to the cubic millimetre—normally about 5,000,000; and the hæmoglobin content expressed in percentage—normally 100; the count of the total number of white cells (leucocytes)—usually about 7500; and the percentage of the different forms of white cells—called the *differential count*. These different forms, the numbers of which vary considerably in disease, are the polymorphonuclears (neutrophiles) —normally about 65 percent; the small mononuclears (lymphocytes)—25 percent; the large mononuclears—8 percent; and the eosinophiles, from 1 percent to 2 percent. The counting is done on an apparatus known as the hæmocytometer with the aid of the microscope. The hæmoglobin content of the red cells is estimated by means of a color scale.

The leucocyte count may increase enormously in pneumonia, blood poisoning (streptococcus infections), empyema, and other pyogenic (pus-producing) infections, while in typhoid and malaria the white cell count is diminished.

In various intestinal parasitic infections, as tapeworm and trichinosis, there is likely to be a distinct rise in the eosinophiles, increasing from the normal 1 percent or 2 percent to 8 percent or 10 percent.

In some infections the bacteria circulate in the blood stream and may be identified by *blood culture*. Blood cultures are prepared by taking about 10 Cc. of blood from the patient's vein under aseptic precautions and adding to 500 Cc. of sterile bouillon. This mixture is placed in the incubator for 24 hours or longer, and examined microscopically to determine any resultant growth. The micro-organisms most commonly sought in blood culture are the *Bacillus typhosus,* pneumococcus, streptococcus, staphylococcus, and para-colon bacillus.

Certain types of parasites or protozoa may be identified by microscopical blood examination. Most common among these are the various forms of malarial parasites. These forms are the *tertian,* most common in this country; the *quartan,* and the *æstivo-autumnal.* The latter is the malignant form found in the tropics. The tertian and quartan are so named because of the interval between the attacks or malarial chills and fever. Trypanosomiasis (African sleeping sickness) and yellow fever are other types of tropical diseases of this group. Such diseases are generally communicated by bites of insects.

Examination of the spinal fluid is not infrequently of great value in diagnosis. The fluid normally is clear and colorless or slightly yellow, and carries about five leucocytes to the cubic millimetre (one or two to the microscopic field). The total quantity varies from 60 to 80 Cc., only about one-half of which may be readily withdrawn. In disease there may be an increased amount which may be under considerable pressure. It may be turbid, contain bacteria, pus-cells, and an increased number of leucocytes. Some of the organisms which may be isolated from the spinal fluid are *Micrococcus meningitidis* (cerebrospinal meningitis); *Bacillus tuberculosis; Diplococcus pneumoniæ; Bacillus influenza; Streptococcus,* and *Staphylococcus.*

Inoculation of animal—usually the guinea-pig—is a valuable means of verifying a diagnosis. For this purpose urine, spinal fluid, ascitic fluid, blood, bacterial culture, or some other substance may be used. Some diseases which permit of diagnosis through animal inoculation are tuberculosis, tetanus, rabies, and diphtheria. The animal is held under observation for periods varying from three days to some months, according to the nature of the suspected disease, provided, of course, it does not die in the meantime.

The examination of sputum may confirm the diagnosis of many diseases, most common of which are tuberculosis, pneumonia, whooping-cough, influenza, and involvements of the lung and bronchial tissues.

Examination of pus may yield the presence of staphylococci or streptococci (as in boils, abscesses, or carbuncles), gonococci (in gonorrhœa), and many other micro-organisms which may complicate an infection.

The urine is an exceedingly important aid to diagnosis. Its examination generally proceeds in three stages: physical, chemical, and microscopical. A fourth stage—cultural, to determine the identity of an infecting organism—is not uncommon. The physical examination of urine covers transparency, color, reaction, volume (in 24-hour specimen), and specific gravity. The chemical examination embraces determination of albumen, sugar, diazo reaction (for typhoid), bile-pigments, urea, indican, chlorides, diacetic acid, acetone, ammonia, etc. The urates, phosphates, sulphates, and other crystalline bodies are usually determined microscopically. Microscopical examination of urinary sediments may determine the presence of various crystals as above, casts, epithelial cells, bacteria, blood, pus, spermatozoa, and various amorphous deposits.

The examination of the urine may facilitate the diagnosis of the following diseases: nephritis, cancer of kidney, abscess of kidney, tuberculosis of kidney, renal calculus (deposits of calcium phosphate or carbonate), pyelitis, cystitis, urethritis, and prostatitis.

The urine in diabetes may yield sugar, rise in specific gravity, increase in free ammonia, acetone, and diacetic acid.

In pneumonia and chronic diseases the chlorides are likely to drop very low.

In typhoid the phosphates are likely to increase.

The variations in the sulphates have little clinical value.

In leukæmia the uric acid content may rise greatly.

In Bright's disease the urine is diminished in amount; specific gravity increases. In the acute form there may be blood, hyaline and granular casts, and epithelial casts, particularly those made up of leucocytes.

In bacterial infections the urine is likely to be turbid and contain pus or blood.

Renal calculus may be determined by the presence of blood, pus, and presence in the urine of calculi.

Impaired kidney function may be determined by kidney functional tests, as phenolsulphonephthalein, to show the diminution of excretion.

Albumen may appear in the urine in nephritis (due to pus, blood, bile, or sugar in urine), toxic albuminuria, after violent exertion, in diseases of blood, and after epileptic attacks.

Glucose may be present in urine after chloroform administration; in diabetes, hypophyseal disease, apoplexy, and pancreatic disease.

Indican in urine results from abnormalities in protein metabolism.

Examination of gastric contents embraces determination of free HCl, digestive power, presence of lactic acid, bile, digestants—pepsin and rennin content—Boas-Oppler bacilli, blood, pus, and sarcinæ.

The normal stomach acidity (HCl) is about 0.2 percent. In ulcer of the stomach there are present increased acidity and occult blood. In cancer (carcinoma) and achylia (absence of gastric ferments) there is lowered acidity.

Lactic acid suggests cancer of the stomach, as also does the presence of the Boas-Oppler bacillus. (Gastric ulcer, besides increase of HCl, may be indicated by the presence of occult blood.)

To determine digestive power, a test-meal consisting of tea and toast is given, the stomach emptied after an hour by means of the stomach-tube, and the contents examined for undigested food.

Examination of the fæces may be of great diagnostic importance. Intestinal parasites, as tapeworm, hookworm, and other parasites, may be detected by spreading the fæces on a slide and examining with the naked eye, or by searching for eggs by means of the microscope. Undigested food particles may consist of fat, meat fibres, vegetable cells, hairs, curds, and starch granules.

Blood in the fæces may indicate hemorrhoids, fistula, enteritis, cancer of rectum or sigmoid, intussusception (telescoping of the bowel), hemorrhagic disease, as purpura, scurvy, acute leukæmia; cirrhosis of the liver, gastric or duodenal ulcer, or blood may be present, due to swallowing after severe nose-bleed.

Pus in the fæces may indicate the breaking of an abscess (appendix, pus tube) into the rectum, ulcers, or intestinal catarrh. There may also be in the fæces mucus from mucous colitis; fat, due to pancreatic disease; frothy stools, as in sprue (thrush); colored stools (due to drugs), and gall-stones.

BETTER CONTROL OF COMMUNICABLE DISEASES.

A plan for securing better control of measles, whooping cough, scarlet fever and typhoid fever is being put into operation by Dr. F. M. Meader, director of the Division of Communicable Diseases of the New York State Department of Health. As soon as the cases and deaths are compiled for the previous month, the case rate and the fatality rate are worked out for each county. Where the case rate is high a circular letter will be sent to all physicians of that county notifying them of the unusual prevalence of the disease and offering the facilities of the laboratory for obtaining diagnosis in obscure cases. If the case fatality rate is high, it is assumed that the cases have not been reported, and the attention of the physician is called to the fact that the law requires that all cases, even suspicious ones, must be reported to the local health authorities.

THE PREPARATION OF SERUMS AND ANTITOXINS.*

BY CHARLES M. TWINING, BERKELEY, CAL.

The paper presents the subject of serum manufacture in considerable detail, including selection of the animal, difficulties encountered in manufacturing, preservation of the serums, etc.

The subject of serum and antitoxin manufacture has been presented many times before, yet I believe that perhaps it has sometimes been treated in a too general or too technical way, which may have made the subject one of little interest to you.

It is my purpose in this paper to take up the very practical side of the subject, to show the many difficulties which may lie in the steps that at first glance may seem very simple, and perhaps show clearly that the man who prepares the serums has his troubles, as has the man who sells them.

Taking diphtheria antitoxin as an example of the best known and most important product, we are all familiar with the fact that at the start it is necessary to prepare a toxin of the diphtheria bacillus for the treatment of the horses which are to produce the antitoxin, and in the production of this toxin lies some of the most particular work the serum maker has to do.

Very often the bacilli of diphtheria taken from the throat of very malignant cases of diphtheria in the human, and which must produce large quantities of toxin in the infected person, do not produce appreciable quantities of toxin when grown on artificial culture media. This fact has led to the adoption, by practically all producers of diphtheria antitoxin, of a particular culture of the organism isolated at the Laboratory of the New York Board of Health several years ago and known as the "Park Williams Bacillus," or Diphtheria Bacillus No. 8. This organism, when grown under proper conditions, usually produces a toxin of very high potency, yet sometimes without apparent cause the toxicity may drop to a very low point.

Ordinarily the bacillus is grown upon a culture medium made from veal and containing a relatively high peptone content, as the toxin production seems to be dependent to a large extent upon the quality and quantity of the peptone present. After the organism has grown for a period of time upon a medium which seems to be best suited for the production of toxin, it may without apparent reason suddenly refuse to produce a toxin of high potency, and in spite of every effort remain at a low level for some time, only to revert again to its original power. There is, of course, some reason for this change, but just what causes may be at work is something very difficult or impossible to determine.

When we remember that it is quite necessary to use a toxin of high potency to obtain an antitoxin of high unitage it becomes evident that this particular point in the process of manufacture is a very important one.

A toxin which will kill a 250-gramme guinea-pig within four days in a dose of $\frac{1}{300}$ to $\frac{1}{500}$ of a cubic centimetre is a very satisfactory one, and sufficient quantities of such a toxin may be easily injected under the skin of the horse to produce the maximum amount of antitoxin in the blood without injecting an excessive quantity of fluid.

The length of time of growth of the bacillus in the incubator is one important point to be determined, since if it is grown for too short a time its full toxicity is not obtained, while if grown too long the toxin formed at first is gradually destroyed and the whole becomes less toxic.

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* Presented to the Scientific Section, A. Ph. A., San Francisco meeting.

Ordinarily the bacillus is grown for six or seven days at a temperature of 37° C. to 38° C., and in the dark, since light has a serious effect upon toxin, both in its forming and afterward.

The culture medium should be in flasks having a large surface in proportion to quantity, as this organism is grown principally on the surface, and the greater the growth the greater the toxicity within certain limits.

After growth has proceeded for the proper length of time the flasks are removed from the incubator and from 0.2 percent to 0.4 percent of carbolic acid or trikresol is added to kill the organisms and preserve the finished toxin. This toxin is then filtered through a germ-proof filter, usually the Berkefeld filter, to remove the dead bacilli, since all we desire is the poison it has produced.

The toxin is stored in full amber bottles in the dark, but at best the toxicity drops quickly at first, and for best results fresh toxin should be used for the horse inoculations.

The selection of the horse is another problem about which every serum maker has his own ideas, but, as a rule, young horses four to eight years old are the most suitable and will take more toxin in a given time than older animals. However, there are exceptions to this rule, as shown by the fact that one horse over fourteen years old yielded a serum testing 1800 units per cubic centimetre, and in doing so received subcutaneous inoculations in a period of six weeks of over one million minimum lethal doses for the guinea-pig; that is, the aggregate of the toxin this horse received in six weeks would have killed more than a million guinea-pigs, each weighing 250 grammes.

As a rule, mares are preferred for serum work, since they are more easily cared for and the swelling produced by the inoculation of the toxin is not so apt to produce complications.

The methods used in immunizing the horse with toxin vary. Sometimes the toxin is weakened by heat or chemicals before injecting the first dose or first few doses. Again, the start is made with extremely small doses, as for instance $\frac{1}{100}$ of a cubic centimetre of the toxin, which represents perhaps three to five minimum lethal doses for the guinea-pig. Sometimes the horse is given an inoculation of diphtheria antitoxin just before or at the time of giving the first injection of toxin, in which case the initial dose is larger, and may be as high as 1000 minimum lethal dose.

These inoculations are usually made under the skin of the side rather than in the neck, since the swellings are probably not so painful when occurring on the side.

The apparatus used in injecting varies with the different workers, but is usually a graduated jar fitted with siphon and tube leading to the hypodermic needle; the application of air-pressure by a pump or bulb to the interior of the tube forces the toxin out, and the quantity may be read as the injection progresses.

The quantity of toxin which may be administered to a horse varies greatly with different animals, but if we accept as a standard a 300 M. L. D. per Cc. toxin, the largest quantity given at any time does not usually exceed 500 Cc. Starting with 2 or 3 Cc. of such a toxin, it may require from three to six months to bring the horse up to his greatest tolerance, and a horse usually produces a commercially valuable antitoxin within six months if at all. It is, of course, impossible to predetermine the value of a horse as an antitoxin producer; varying results are constantly obtained, as may be shown by the fact that of a series of five horses treated in exactly the same way the antitoxin produced in a given time may run all the way from a point so low as to be of no practical value to one that tests 1000 to 1500 units per cubic centimetre, which is considered very satisfactory. It is this fact which makes the cost of production of the antitoxins very erratic and which may for one period of time show a handsome profit and for another period a loss, yet which in the end, with careful work, averages fairly close to an estimate which can be made by an experienced worker.

After the immunization has progressed for a period of two or three months, depending upon the amount of toxin given, the horse is bled from the jugular vein to determine the progress made.

The bleeding is usually made with a cannula having a diameter of 10 to 12 mm., often having a side-arm for greater asepsis. The setting of the trocar and cannula into the vein is easily done by one experienced in the work, and the animal usually makes little objection to the procedure. The amount of blood drawn from a horse in regular work varies with the weight and condition of the animal, ranging from four to eight litres, or even more in the case of heavy horses in good condition. Bleedings are usually made every thirty days, though longer or shorter intervals may be used, depending upon the condition of the animal.

The blood is drawn into sterile glass tubes having a diameter of 50 mm. and a length of 500 mm., in which the blood clots and forces out the straw-colored serum, which is the part of value containing the antitoxin. It is probable that the clot contains some antitoxin, but it cannot be readily removed, so is discarded.

After drawing, the tubes are placed in cold storage to allow the clot to form, which requires from 24 to 48 hours, differing more or less in different horses and at different periods. Sometimes the clot forms solidly and but little serum separates. Again, the separation of serum may be very great. We will recognize that commercially this is a point of very great importance, since upon the quantity of serum obtained, as well as the quality, depends the value of the animal. Upon rare occasions the amount of serum obtained is so small as to condemn the animal as a producer of serum. In case of poor separation of serum various methods to overcome the trouble have been used.

Feeding the horse various substances which may cause a freer clotting and consequent greater squeezing out of serum has been tried with more or less success. It has also been noted that in many instances lack of green feed has resulted in diminished separation of serum, which may be overcome by supplying such feed.

Another method is the placing of sterile weights upon the clot to force it down and by mechanical pressure squeeze out the serum. Such a method obviously has the disadvantage of causing greater risk of contamination.

After the serum separates it is drawn from the tubes, by the use of suction, to amber stock bottles and preserved with either chloroform or trikresol. While serum without preservative will precipitate more or less, it is this preservative which is largely responsible for the sediment or precipitate often found in commercial serums. Trikresol is more efficient as a preservative, but produces more precipitate.

It is possible, of course, to prepare a serum without preservation, but, since this entails considerably more work and has, in a practical way, little advantage, the preservative is almost universally used.

The final step in the preparation of the serum is to filter through a germ-proof filter, though this is sometimes omitted, since it is possible, even probable, that at times the filter may remove some of the active principles present. This can be measured accurately in the case of diphtheria antitoxin, but not so with many other serums, so it may be advantageous to omit this step in some cases, especially since careful drawing and handling of the serum will almost invariably avoid contamination.

Before taking up the practical side of the purity and potency testing of diphtheria antitoxin I would call your attention to the fact that most of the diphtheria antitoxin marketed in the United States is of the purified or concentrated type, which differs materially from the natural serum type formerly supplied. In the preparation of the concentrated type of diphtheria antitoxin the blood from the immunized animal, instead of being drawn in tubes and allowed to coagulate, is drawn into bottles containing a solution of sodium citrate, which prevents clotting but allows the corpuscles to settle, leaving the plasma containing the antitoxin as a supernatant fluid, which may be decanted when the sedimentation is complete.

By this method a greater yield per horse is obtained, this increase amounting sometimes to as high as 40 percent. It should be noted, however, that such a fluid is not suited for direct inoculation into the patient, as is the case with the serum, but it must be processed before use.

Starting with the plasma, there are several methods of concentration now in use; however, the general principle underlying each is the precipitation of the antitoxin-bearing globulins in the plasma by the use of ammonium sulphate or heat and ammonium sulphate, the elimination of as great a quantity of inert solids as possible, and the resolution of the antitoxin in the smallest quantity of water possible. A small quantity of salt is added to the finished product to make it isotonic.

The concentrated form has much to recommend it, both from the standpoint of the manufacturer and the patient, the most important of which is that a much greater number of units may be administered in a given volume in the case of the concentrated than in the old type, and the rashes do not occur quite so frequently following the use of this form.

From the standpoint of the serum maker the concentrated form is preferable, since antitoxins of such low potency as not to be of value in the serum state may be concentrated to a point where they are quite acceptable.

Formerly 1000 units per cubic centimetre were considered a high potency antitoxin, while since the advent of the concentrated form unitage as high as 4800 units per cubic centimetre have been obtained; by this I mean actual material ready for use, not experimental material, which, though it may be of greater potency, may also not be in a form for practical use.

One of the factors which must be carefully considered is the solid content of the finished product, which should not exceed 20 percent. This, in fact, is one of the factors which determines the limits of potency to which a concentrated antitoxin may be raised, since the greater the quantity of antitoxin-bearing solids in the fluid the greater the specific gravity and the slower the absorption by the patient.

The tests for purity put upon diphtheria antitoxin, as well as upon other sera, are exhaustive and are quite severe.

The first test is usually made by taking 5 Cc. of material from each lot before adding any preservative, which is injected into a young guinea-pig, the animal being watched carefully for ten days.

When ready to filter the antitoxin, each filter is tested for efficiency before being used. The Berkefeld filter is used, which, as you may know, is a cylinder of diatomaceous earth having pores so small that ordinary bacteria cannot pass through, though fluids of relatively low specific gravity may do so. These cylinders, properly prepared, are sterilized in steam under pressure, and when cool are set up in the usual way and a culture of some harmless organism, such as the *Bacillus prodigiosus,* is placed in position and filtration started. A small amount of the filtrate is collected and planted on sterile culture media to determine whether or not any of the organisms got through. If so, the filter is discarded. If not, it is again sterilized in steam and used for the filtration of the antitoxin.

After the filtration of the antitoxin is completed several "plants" from the finished material are made on sterile culture media to determine its freedom from living bacteria. These tests remain in the incubator for seven days, which will determine without question the purity or contamination of the material.

Again, before the antitoxin is filled a small amount is removed from the stock bottle and tested for purity on appropriate media, both aërobically and anaërobically.

After filling the syringes or bottles another cultural test is put upon two or more finished packages from each lot.

The tests for potency require a great deal of careful work, so I shall not attempt to give you a very detailed description of all the steps, but only the most important ones.

The first step requires the very accurate standardization of the toxin in the determination of what is termed the L + dose, which is the quantity of toxin necessary to kill a 250-gramme guinea-pig when mixed with one "unit" of antitoxin. Broadly speaking, a unit of antitoxin will neutralize 100 M. L. D. of toxin, so the L + dose is broadly 101 M. L. D. (I say "broadly" because these statements are not strictly correct, several factors affecting the statement.) To determine the strength of the antitoxin to be tested, a series of guinea-pigs weighing 250 grammes are selected, appropriately marked to distinguish them, and each pig receives one L + dose, together with a quantity of serum previously determined and mixed with it. For instance, if a guinea-pig received one L + dose of toxin and 1 Cc. of antitoxin, which pig lived for just 96 hours, we would say that the serum tested one unit per cubic centimetre; however, if the same results were accomplished with $\frac{1}{100}$ of a cubic centimetre, it must necessarily be 100 times as strong, or 100 units per cubic centimetre; or, if $\frac{1}{500}$ of a cubic centimetre only was required, then it must contain 500 units per cubic centimetre.

Many things may affect the accuracy of the test unless great care is used, as may be shown by the fact that guinea-pigs from one source may be more resistant than from another source, and thereby discordant results may be obtained unless the source of supply be carefully watched. This has led many careful workers to establish breeding-pens of their own, with a careful watch kept to preserve the breeds selected.

The United States Government supplies a standard antitoxin, against which each serum maker supplying serum in the United States must standardize his toxin, which in turn is used to determine the unitage of the antitoxin produced.

Since each horse reacts differently to the treatment given him and produces more or less antitoxin, depending upon this treatment, the testing of the antitoxin may sometimes consume considerable time and a large number of animals.

The final potency tests should be put upon the antitoxin after filtration, since some of the antitoxin may be removed by the filter. This is especially so in the case of the concentrated type, since the specific gravity of this form is greater than the serum form, and it often contains a greater amount of precipitate, which may carry some of the antitoxin and reduce the potency by being held back in the filter.

When all the tests are completed the material may be filled into appropriate containers, which in the United States is almost invariably a form of syringe which can be easily prepared for use. The American physician demands convenience, and the manufacturers have been quick to supply this demand. These syringes must, of course, be quite sterile before filling the antitoxin into them, and the process of filling is one where great care must be observed.

Various forms of apparatus have been devised for the aseptic filling of antitoxin, especially since the concentrated form has come into such general use, as it may at times be rather heavy in consistency and harder to fill than the serum.

While gravity may sometimes be effective in running the material from the stock bottle to the syringe through a siphon and tube, usually arrangement is made to apply pressure. A form of apparatus is also used which automatically measures the amount as it goes to the syringe.

Since antitoxin decreases in potency with age, the amount put into a package must be in excess of its labelled unitage in direct proportion to the length of time set for its market life. For instance, let us say we are to put up a 1000-unit package of antitoxin and we want to put a " return date " upon this package one year hence. Knowing that antitoxin may decrease in unitage from 10 percent to 25 percent per year, we must put into the package an excess of 25 percent to be assured that it will test up to its labelled unitage at the end of that year.

Both diphtheria and tetanus antitoxin may be evaporated in a vacuum and dispensed in a dry form, which retains its potency for many years. However, the time and labor of getting the dry powder into solution make this form of value only in remote places where the serum is used but rarely and the keeping quality of the powder is the greatest consideration.

The method of making tetanus antitoxin does not materially differ from that of making diphtheria antitoxin, both of them being true antitoxins. The making of tetanus toxin is perhaps easier than that of diphtheria, though the method is quite different, in that, while the diphtheria bacillus requires a liberal supply of oxygen for its best toxin production, the tetanus bacillus must be grown in the absence of oxygen, since it is what we term an " anaërobe " and grows only when oxygen is excluded. This explains why deep, dirty wounds like nail punctures most often produce tetanus, since the germ is placed deeply enough to exclude the air, where it can grow and produce toxin in the body.

The strength of tetanus toxin is very much greater than that of diphtheria, as shown by the fact that of a good toxin a dose of $\frac{1}{10000}$ to $\frac{1}{20000}$ of a cubic centimetre is fatal to the guinea-pig. The toxicity may run much higher than this, though for regular work this strength answers nicely.

The testing of tetanus antitoxin differs from that of diphtheria antitoxin in that the guinea-pigs used have a standard weight of 350 grammes instead of 250 grammes, and the unit is the quantity which will protect the animal against approximately 1000 minimum fatal doses of the toxin, so it is comparatively ten times as strong as the unit of diphtheria antitoxin.

This will explain in some measure the reason why the apparent strength of tetanus antitoxin is not so great as the antitoxin of diphtheria, since a 5000-unit package of the former usually requires a larger quantity of fluid. However, 5000 units of tetanus antitoxin really corresponds to 50,000 units of diphtheria antitoxin, so its strength is comparatively much greater.

The United States Government supplies standard tetanus toxin to be used in testing the antitoxin, and all such antitoxin is so tested.

The concentration of tetanus antitoxin is carried out in much the same way as described in the making of diphtheria antitoxin, and, since it is used in large quantities in the treatment of tetanus, a high concentration is much to be desired.

Tetanus antitoxin is sometimes supplied in a dry form to be dusted upon the surface of wounds suspected of being infected with the tetanus bacillus.

I have here described the two antitoxic serums which are of the greatest importance of any of the serums. These are the only true antitoxins of any importance.

When a patient is infected with the diphtheria bacillus the organism usually localizes in the throat and, by producing quantities of toxin, poisons the patient more or less rapidly, but the germ usually remains only at this point, and the poison is what causes in most cases the symptoms of the disease and death where death occurs. Also, in tetanus, the germ usually localizes at a point where a wound has been inflicted, and from that point it elaborates toxin which poisons the nervous system.

Now note that it is only these two diseases that act in this way, and, since they kill by their toxin, then the proper treatment is by the neutralization of the toxin, this being done by the antitoxin. However, the bacteria causing other diseases do not form toxin under artificial conditions, nor is it known that they produce a definite toxin in the body, so we must proceed with the making of a serum by using the living, virulent bacteria themselves in the treatment of the horses used to produce serum.

Such serums are not antitoxins, but are known as antibacterial serums, and as an example, perhaps, antistreptococcic serum is the best known. The process of making this serum differs in detail only with different serum makers, but the first step is the procuring of streptococci from human patients affected with the several diseases due to this organism. This may be erysipelas, septicæmia, various suppurative conditions, etc., and the greater the number of different cases from which these are gotten the greater the range of efficiency of the serum in treatment, presumably.

Usually the first few inoculations of the horse are of the killed bacteria, followed by increasing amounts of the live, virulent streptococci.

Sometimes the serum maker places his dependence upon one strain of the organism; that is, the streptococcus from one case of one disease, which has been passed through guinea-pigs or rabbits many times until it is very virulent. Whether serum so made is as efficient as one made by using many strains not so virulent but from a wide range of diseases due to the streptococcus is a disputed question, but the greater part of the serum made in America is of the many-strain type, which is therefore termed a polyvalent serum.

Quite naturally the effects upon the horses are greater in using the living bacteria than from the use of toxin, since the effect of the toxin is self-limited, because it cannot increase in quantity or virulence, and can be counteracted by antitoxin if the reaction is too severe, while with the live organisms, which can increase in number and virulence, great care must be used, as they may cause death, as would any natural disease due to the same cause, therefore it is necessary to build up the horses' immunity slowly and carefully, all of which requires much time; so the production of any antibacterial serum of proper potency requires more time than the production of either tetanus or diphtheria antitoxin.

The testing of the efficiency of antibacterial sera cannot be done with the accuracy that obtains in the testing of the antitoxins, since it is not known upon just what principles their curative action depends.

The tests put upon antibacterial sera may be a determination of the opsonin content, which is the quantity of a substance that prepares the bacteria causing a disease so they may be easily destroyed by the phagocytes or white blood-corpuscles.

The agglutination test is used to a considerable extent, this test showing the power of the antibacterial serum to agglutinate or clump the disease-producing bacteria.

Another test of some value is the determination of the quantity of bacteriolysin, or substance which acts by dissolving the pathogenic bacteria.

Tests upon small animals have been used to a considerable extent by first ascertaining the minimum amount of the organism, against which the serum is protective, which is fatal to a mouse or guinea-pig. Then a series of these animals are given this minimum fatal dose and varying quantities of the serum under test. The serum should protect in a quantity arbitrarily set as a standard. However, it is extremely difficult to determine the minimum fatal dose of a living organism because of the great difference in susceptibility and resistance among animals of the same lot, even when carefully selected. As a matter of fact, some tests of this kind would tend to show that even a very well made serum had no protective power, which may indeed be the case in so far as the mouse or guinea-pig is concerned, yet this cannot be considered a measure of its effectiveness for the human.

I cite antistreptococcic serum as an example because it is the best known and is a good type of antibacterial serum. Others, like antipneumococcic, antimeningococcic, anti-anthrax, anti-dysenteric, and antigonococcic serum, are used to some extent, and are made in much the same way. Antimeningococcic serum has given some very nice results during the last few years. The making of antimeningococcic serum is attended with probably more danger to the horse than the others, since to produce a serum of high potency it is necessary to force the treatment of the horse to the limit of tolerance. In the making of antimeningococcic serum, in addition to dead and living meningococci, we use autolysates of the organism, which is the germ grown in appropriate culture media and allowed to remain there until dissolved by the action of its own poisonous products.

The preservation of antimeningococcic serum presents a problem which is not present in most other serum work, in that this serum is administered almost entirely by inoculation into the spinal canal; therefore the kind and amount of preservative are of great importance.

Quantities of trikresol which are quite harmless when injected subcutaneously or intravenously are, when injected intraspinally, more or less dangerous. Therefore it is necessary to use a smaller quantity of preservative in this serum than in others, usually 0.1 to 0.2 percent trikresol or 0.1 percent chloroform.

When chloroform is used it may be volatilized by the application of mild heat to the serum before using. This, however, entails considerable work and is seldom done.

Antivenomous serum is another type of serum which has been used in this country to some extent, especially in the treatment of rattlesnake bite. This serum is prepared by treating rabbits, goats, or horses with gradually-increasing doses of venom from poisonous snakes, particularly the cobra and rattlesnake. The effect of venom when injected into the animal is immediate, and great care must be used in graduating the doses. Heat is sometimes used to attenuate the venom before injecting it. It will be noted that such a serum is not an antitoxin of the type of diphtheria or tetanus antitoxin, nor is it an antibacterial serum in any sense, but, as its name implies, a serum opposed to venom.

The venom from the cobra causes a dissolving of the blood-corpuscles of the patient bitten; also, it affects the nervous system considerably, while the effect of rattlesnake bite is shown principally upon the endothelium of the blood-vessels, which accounts for the severe hemorrhages usually seen in such cases. Therefore it would appear that the antitoxin for one type of venom would not be effective in the treatment of bite carrying the other type. It should therefore be borne in mind that the most effective serum for each type of bite is the one made by the use of that particular venom. Serum may be made by using varied venoms in the treatment of the serum-producing animal, making a polyvalent antivenomous serum.

Another type of serum is that known as antipollen serum or pollen antitoxin (hay-fever serum).

The pollen of certain plants is the cause of certain very distressing symptoms in some persons, and in an endeavor to obtain an anti-substance a serum has been produced by the treatment of horses with this pollen, properly prepared. The pollen is mixed with sodium chloride solution containing a preservative, and this mixture is precipitated with alcohol and the precipitate is dissolved in salt solution.

The results from the use of this serum have been, on the whole, fairly good in properly-selected cases.

It should be noted that such a serum is applied locally by dropping into the eye or spraying into the nostrils or throat instead of by subcutaneous, intravenous, or intraspinal inoculation, used in administering other serums.

Normal serum, as its name implies, has no specific qualities and is simply the serum obtained from the normal blood of the human or from various animals, as the rabbit, sheep, or horse.

The serum of this type in greatest use is from the horse, and is prepared as are the other serums, except that the horse receives no specific treatment. The serum is useful in supplying those substances which facilitate clotting of the blood, and in the treatment of some types of hemorrhages in the human it is of great value.

Efforts are sometimes made to increase the quantities of these clot-forming substances in the blood of the horse by special feeding, which is probably of little avail; also by frequent bleedings we may obtain a stimulation of the production of such substances, and, therefore, perhaps, a horse which has been bled many times may produce a better normal serum than one bled but seldom.

The fact that a few of the serums have been quite effective has led to the preparation of many that have been of little or no value. These are of so little importance that they are not here mentioned. Among these, however, are a few of some interest because they are of a still different type from those before described.

One of the most absurd is an anti-alcoholic serum for the treatment of persons who imbibe too freely. Such a serum has been advocated, made by treating horses with large quantities of alcohol by the mouth, presuming that after a period of such treatment the blood of the horse will contain antibodies effective in treating alcoholics.

One is constrained to remark that if this theory were sound some very effective serum might be obtained by bleeding certain human beings without any further treatment.

No doubt many obstacles now standing in the way of the production of effective sera will be removed by the constant and conscientious efforts of the many who are now engaged in this work, and it is not too much to predict that some day we will have serum of one type or another that will be of sufficient specificity for each of the diseases due to bacteria to reduce the mortality in such diseases, as diphtheria antitoxin has in the last twenty years reduced the diphtheria mortality.

That the methods now used in the production of antibacterial sera must be changed or greatly augmented there is but little doubt. Along what lines such changes may be made must be left to one whose power of visualization is greater than mine.

THE RETARDING EFFECT OF CERTAIN SUBSTANCES ON PEPSIN DIGESTION.*

BY C. F. RAMSAY.

The author finds that comparatively small amounts of quite a number of salts in combination with pepsin interfere or negative the test for pepsin, but that in the preparations of the National Formulary the added constituents of compound preparations of pepsin do not inhibit the activity of the pepsin, at least in so far as the test is concerned.

During the course of some work which required the testing of a number of tablets and elixirs containing pepsin it was found that some of these samples did not have the pepsin activity which they should have possessed. Some of the tablets contained a sufficient quantity of calcium carbonate to lessen the acidity of the acid medium, thus making the tablets appear to contain less pepsin than was really present. In other samples there were present substances which by their mere presence retarded the pepsin digestion.

In considering the retarding effect of certain substances on pepsin digestion we must bear in mind the extremely small amount of pepsin that is needed to bring about the transformation of a large amount of albumen. For instance, if a sample of pepsin is 1 in 3000 U. S. P., then one gramme would digest 3000 grammes of egg albumen. Ten grammes of albumen, the amount used in the U. S. P. test, would require only 0.0033 gramme of pepsin to digest it. If one fluidrachm of a pepsin solution digests 1200 grains of albumen, then ten grammes of albumen would require only 0.47 Cc. of this solution. The small amount of pepsin required to digest a large amount of albumen probably accounts for its sensitiveness toward other substances.

The writer finds that pepsin is quite sensitive toward iron and bismuth. In the N. F. Elixir of Pepsin and Iron there is no retarding effect from the amount of citro chloride of iron specified, but if twice as much iron is used the pepsin tests only 1 in 2250, or 75 percent of what it should, and if four times the amount is used the pepsin tests only 1 in 1800, or 60 percent of what it should. In the Elixir of Pepsin and Bismuth N. F. there is no retardation, but if twice as much glycerite of bismuth is used the pepsin tests only 1 in 2250, or 75 percent of what it should, and using three times the amount of bismuth the pepsin tests only 1 in 1800, or 60 percent. In determining the retarding effect of substances on pepsin digestion, the writer placed the amount of the pepsin 1 to 3000 required for ten grammes of egg albumen into each of ten bottles containing the albumen. Three of these bottles were reserved as the standards, and to the other seven were added different amounts of the substances being tried out for their retarding effect. It was first determined how much of the substance had to be added to show an appreciable retardation. Then larger amounts were used. For instance, adding 0.01 gramme of potassium and sodium tartrate to 10 grammes of egg albumen, the strength of the pepsin was not affected, but adding 0.02 gramme made it test 1 in 2750, and with 0.03 gramme it tested only 1 in 2500. The retarding effect of the following substances was carried out in the same manner:

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* Read before Scientific Section, A. Ph. A., San Francisco meeting.

Sodium Phosphate.

0.01 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.02 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.03 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.04 gramme caused the pepsin to test 1 in 2250, or 75.0 percent

Magnesium Sulphate.

0.0025 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.01 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.02 gramme caused the pepsin to test 1 in 2250, or 75.0 percent
0.03 gramme caused the pepsin to test 1 in 2000, or 66.6 percent

Ammonium Chloride.

0.02 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.03 gramme caused the pepsin to test 1 in 2250, or 75.0 percent
0.04 gramme caused the pepsin to test 1 in 2250, or 75.0 percent

Sodium Chloride.

0.03 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.05 gramme caused the pepsin to test 1 in 2250, or 75.0 percent
0.07 gramme caused the pepsin to test 1 in 1750, or 58.0 percent

Calcium Chloride.

0.01 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.02 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.03 gramme caused the pepsin to test 1 in 2250, or 75.0 percent
0.04 gramme caused the pepsin to test 1 in 2000, or 66.6 percent

Potassium Chloride.

0.01 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.02 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.03 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.04 gramme caused the pepsin to test 1 in 2250, or 75.0 percent

Magnesium Chloride.

0.03 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.04 gramme caused the pepsin to test 1 in 2750, or 91.7 percent

Manganese Chloride.

0.02 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.03 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.04 gramme caused the pepsin to test 1 in 2500, or 83.4 percent

Aluminum Chloride.

0.02 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.03 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.04 gramme caused the pepsin to test 1 in 2500, or 83.4 percent

Saccharin.

0.01 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.02 gramme caused the pepsin to test 1 in 2250, or 75.0 percent

Cane-sugar.

No retarding effect using as much as 0.05 gramme.

Tannic Acid.

0.05 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.1 gramme caused the pepsin to test 1 in 2500, or 83.4 percent
0.2 gramme caused the pepsin to test 1 in 2000, or 66.6 percent

Chloroform.

0.1 Cc. makes it almost inert.

Nicotine.

0.02 Cc. pure nicotine retards the pepsin slightly. Above this the retardation is very marked.

Pancreatin.

0.03 gramme caused the pepsin to test 1 in 2750, or 91.7 percent
0.04 gramme caused the pepsin to test 1 in 2750, or 91.7 percent

Papain.

0.04 gramme caused no effect.

Glycerin.

0.8 gramme has no effect.

Alcohol.

1.5 Cc. had no effect.

Alkaloids.

With strychnine alkaloid, citrate, and sulphate there was no retardation, using as much as 0.04 gramme.

Caffeine showed no effect.

Morphine had no influence unless 0.01 gramme was used.

0.02 gramme quinine hydrochloride caused the standard to test 1 in 2750.

0.005 gramme of quinine sulphate caused the standard to test 1 in 2750, and with 0.02 gramme it tested 1 in 2500.

Spices.

Powdered ginger, cloves, nutmeg, and cinnamon had no effect.

From the above results we find that the N. F. Elixirs of Iron and Pepsin and Bismuth and Pepsin do not contain enough iron or bismuth to cause a retarding effect in the testing of these elixirs, but if the amounts of iron or bismuth were doubled the test would show less pepsin than is really present, because of the action of the metallic salts on the pepsin in the test. A combination of pepsin with other salts is not very common, but it may occur in prescribing to satisfy special conditions. It is to be noted that pepsin digestion is interfered with whenever any of the common medicinal salts are present to the extent of about three times the amount of pepsin. The sulphates have a greater retarding action than the other salts tried, but magnesium sulphate appears to be even more poisonous to pepsin than the others. In addition to the above, it must be remembered that any salt which is present in sufficient quantity to lessen the acidity of the acid medium will make the pepsin appear less active, and if sufficient to neutralize the acid the pepsin will be rendered inactive.

As regards organic bodies, we find that cane-sugar has no effect, while saccharin has a decided influence.

Glycerin, alcohol, common alkaloids, spices, pancreatin, or papain has no influence on the test in proportions that are likely to be found in medicinal preparations.

Tannic acid and chloroform are quite injurious to pepsin, even in small proportions.

Very small amounts of nicotine show a decided injurious action, in contrast to the other alkaloids tried.

In conclusion, it must be remembered that in the testing of pharmaceutical preparations containing pepsin for pepsin activity or content the presence of inorganic salts is not a matter of indifference in the test, but must be taken into consideration. If these salts are present in sufficient quantity to reduce the action of the pepsin, the test will show less pepsin than is really present. In such cases the solution should be diluted to the point where the salt will be below the amount which influences the pepsin digestion. There is no evidence that the pepsin is killed in the original preparation by the salts, but the test is rendered inaccurate by the presence of these if in large enough proportions.

Scientific Laboratory of Parke, Davis & Co.,
Detroit, Mich., June 30, 1915.

VALUATION OF RHAMNUS BARKS.

Tunmann (*Apoth. Zeit.*) gives the following simple method for estimating the anthraquinone derivatives in barks of the various species of rhamnus. The dry, finely powdered bark (1.6 grammes) is boiled with 100 grammes of 4 percent sodium hydroxide solution in the case of rhamnus purshiana (or with a 3 percent alkaline solution in the case of rhamnus catharticus) and the mixture shaken for 10 minutes. After allowing the drug to settle the liquid is decanted upon a double filter, the residue shaken again for 10 minutes with 60 grammes of the caustic soda solution, the liquid filtered also and the filter and residue washed with 10 Cc. (mils) of caustic soda solution and water. The combined alkaline liquids are acidulated with hydrochloric acid and shaken for 30 minutes with 160 grammes of chloroform. The mixture is allowed to stand for two hours; 120 grammes of the chloroform solution are filtered off and shaken out with 120 grammes of caustic soda solution. After allowing to separate, 100 grammes of the alkaline solution are filtered, acidulated with hydrochloric acid and allowed to stand over night. The precipitate is then collected on a tared filter, washed with water acidulated with hydrochloric acid and dried at 60° C. to constant weight. The weight multiplied by 100 gives the percentage of anthraquinone derivatives in the bark. By this process rhamnus frangula assayed 3.8 percent; rhamnus carniolica, 4.1 percent; rhamnus purshiana, 1.8 percent, and rhamnus catharticus, 2.01 percent.—Through *Druggists' Circular.*

RESIN JALAP.*

BY J. PAUL SNYDER.

The author finds that the U. S. P. standard of 35 percent chloroform soluble matter in resin of jalap is indefinite, because the amount depends entirely on the method employed for extracting the resin.

His conclusions are that the Pharmacopœia should state definitely the amount of sample and chloroform to be used, the method to be employed, and the length of time the resin should be treated with the solvent.

The United States Pharmacopœia VIII revision directs that not more than 35 percent of resin should be soluble in chloroform. However, the Pharmacopœia does not give any definite direction as to the method that should be used to obtain the chloroform soluble portion, and, as the manipulation is left entirely to the discretion of the analyst, the method of procedure that would undoubtedly suggest itself to him would be to add to a weighed portion of the resin several successive portions of chloroform, carefully stir the resin and the solvent, filter and collect the different portions of chloroform, evaporate the chloroform, dry to constant weight and weigh. However simple the above appears, there are two factors which cause considerable error in the results.

1. When the chloroform is added to the jalap a sticky, gummy mass results, and it is improbable that the chloroform penetrates to all portions of the resin, even with considerable stirring, and we do not obtain the entire amount of the chloroform soluble. Placing the jalap and chloroform in a cylinder and shaking on a mechanical shaker does not offer any assistance, as the resin sticks to the sides of the cylinder, and, again, the solvent does not come in contact with all portions of the resin.

2. The chloroform soluble portion does not appear to be extracted with a reasonable number of extractions. A one-gramme sample, after being treated with 16 successive portions of chloroform, still contained some chloroform soluble, as from the last portion a weighable residue was obtained. A second resin yielded a residue after being subjected to 19 portions of chloroform.

To continue the extractions further than this number of times is not practical, and this method was therefore discarded.

A weighed portion of the resin was then dissolved in alcohol, transferred to a separatory funnel, and an equal volume of water added, and the whole shaken out with several portions of chloroform, the chloroform filtered and collected in a tared flask, the chloroform evaporated, and the flask heated and weighed. This yielded high results, and, as a portion of the alcohol readily mixed with the chloroform, this method was rejected.

It was now thought advisable to resort to the Soxhlet apparatus, and a one-gramme sample was extracted with chloroform for twenty hours, the chloroform evaporated, the flask dried and weighed, and it was found that practically all the resin was entirely soluble in chloroform. One thing, however, we noticed was that after the chloroform had cooled down in the flask a portion of the resin separated and clung to the flask in sticky masses. We now decided to treat a portion of the resin with chloroform, under a reflux condenser, cool the extraction, and filter out the undissolved residue, evaporate dry and weigh. We accordingly did this, and found that the results were higher than the U. S. P. limit, 35 percent.

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* Read in abstract before Scientific Section, A. Ph. A., San Francisco meeting.

We then deemed it necessary to investigate the solubility of resin jalap in chloroform, and the following is the result of this investigation:

Sample No. 1 submitted by our manufacturing department:

Chloroform soluble by Soxhlet method, 98.5 percent.

Chloroform soluble by Reflux method, 41.3 percent.

An examination of the drug from which this resin was prepared showed that it conformed to the U. S. P. tests for identity and purity. We then prepared from this lot of jalap a small portion of the resin (sample No. 2) according to the directions given in the U. S. P., and which gave the following results:

Chloroform soluble by Soxhlet method, 78.6 percent.

Chloroform soluble by Reflux method, 42 percent.

A sample of lot No. 1 was submitted to a well-known firm of analysts, with the direction that they examine the resin according to the U. S. P. They reported the chloroform soluble to be 16.8 percent. A request for their method of obtaining the chloroform soluble portion was then made to them, and they replied that they had made the test according to the following:

One gramme of the resin was stirred up with five or six portions of the solvent in a small beaker. The solvent was filtered into a weighed flask, the solvent distilled off, and the resin dried to constant weight.

We then informed them that by using a similar method we were unable to completely exhaust the resin with from fifteen to twenty portions of chloroform, and stated that by using the Soxhlet apparatus we obtained considerable higher results.

They then replied as follows: "The chloroform soluble as determined by us (16.8 percent) is undoubtedly too low. We have determined the chloroform soluble by extracting in a Soxhlet, allowing the extracted mass to stand over night, and filtering out the insoluble resin. Testing in this way we get a chloroform soluble of 33.80 percent, or a trifle under the U. S. P. limit. This is not a very satisfactory method of extraction, as the resin floats on the chloroform and sticks to the sides of the tube, and some insoluble resin comes over the surface. We next tried boiling the resin in chloroform with a reflux condenser, allowing to stand over night and filtering off the chloroform soluble. This amounts to 41.8 percent, but the resin is not completely soluble in cold chloroform, a jelly-like mass remaining in the flask. The resin obtained from the Soxhlet extraction dissolves very readily in cold chloroform. In each case where an extraction of this kind is made it is necessary to allow the extract to cool before filtering from the insoluble resin, and it is also necessary to test the extracted resin by dissolving it in chloroform. In extracting a resin of this kind more or less of it will be carried over into the extraction flask.

"When possible we always prefer to dissolve the material in the cold solvent."

Letters sent to various manufacturers of resin jalap, requesting them for their method of obtaining the chloroform soluble, brought forth the following two replies:

From manufacturer No. 1: "We find it makes some difference as to how the test for chloroform solubility is applied. For example, in one case, working on exactly the same jalap resin, when it was powdered and then mixed with sand and extracted with chloroform, 21 percent was found to be soluble in chloroform.

Practically the same result was obtained if it was mixed with talc, but when the powdered resin was slowly added to the chloroform a little over 28 percent solubility was found.

" The most satisfactory way of applying the test we have found to be as follows:

" Take a gramme of the finely-powdered resin and add it to 100 Cc. of chloroform contained in a flask which can be tightly stoppered, shake in a mechanical shaker for several hours, let stand to settle and decant the chloroform through a filter paper, wash the residue with a little chloroform (about 25 Cc.), evaporate the combined chloroform filtrate to dryness in a tared flask, and weigh the residue."

From manufacturer No. 2: "About one gramme of a coarsely powdered sample is weighed, and this is extracted in a beaker or small evaporating dish with chloroform, using a stirring rod to aid in the extraction. The chloroform is then decanted from the residue each time onto a small filter and filtrate caught in a tared beaker. These extractions are repeated until the chloroform, on evaporating a few drops, shows no residue. The filter washed thoroughly with chloroform, and total chloroform filtrate is evaporated on water-bath. The residue is dried at 100° C. and weighed."

In the method submitted by manufacturer No. 1 no attempt is made to determine if the chloroform soluble portion has been completely extracted by the chloroform, while with the method submitted by manufacturer No. 2 the evaporation of a few drops of the solution is not sufficient to show the completed extraction with the solvent.

From our investigation of the method of stirring a portion of the resin with several portions of chloroform, it would appear that neither method submitted by the two manufacturers is effective for the complete removal of the chloroform soluble portion of resin jalap.

We then prepared sample No. 3, which was a resin prepared from another lot of jalap which had been found to be U. S. P. quality, and when tested for chloroform solubility by the Soxhlet and Reflux methods yielded the following percentages:

Chloroform soluble by Soxhlet method, 69.7 percent.

Chloroform soluble by Reflux method, 41.9 percent.

Samples Nos. 4, 5, and 6 were purchased in the open market from reliable manufacturers, and from which the following results were obtained:

No. 4, chloroform soluble by Soxhlet method, 84.6 percent.
No. 5, chloroform soluble by Soxhlet method, 76.2 percent.
No. 6, chloroform soluble by Soxhlet method, 74.6 percent.
No. 4, chloroform soluble by Reflux method, 41.8 percent.
No. 5, chloroform soluble by Reflux method, 38.4 percent.
No. 6. chloroform soluble by Reflux method, 38.6 percent.

Sample No. 7 was secured from Dr. Geo. M. Beringer, of the U. S. P. Revision Committee, and which is claimed by him to be a resin jalap, strictly U. S. P., made by him from authentic drug purchased for U. S. P. committee. This gave the following solubilities:

No. 7, chloroform soluble by Soxhlet method, 94.1 percent.
No. 7, chloroform soluble by Reflux method, 53.1 percent.

This sample was also tested by simply repeatedly washing the resin by pouring the chloroform on the resin, stirring and filtering the solution, collecting the filtrate, evaporating to dryness, heating and weighing. However, after the sixteenth washing a weighable portion was still being extracted.

The chloroform used in the above determinations was examined according to the U. S. P. VIII and found to answer these requirements for purity.

The following is a tabulated list of the results obtained by the Soxhlet and Reflux methods of the seven samples examined:

Samples	Soxhlet method	Reflux method
Number 1	95.5	41.3
Number 2	78.6	42.0
Number 3	69.7	41.9
Number 4	84.6	41.8
Number 5	76.2	26.4
Number 6	74.6	36.6
Number 7	94.1	53.1

Conclusions.—The U. S. P. standard of 35 percent chloroform soluble for resin jalap appears to be very indefinite, the amount of chloroform soluble depending upon the method used to extract the resin.

From the above data it would appear that it would be highly desirable for the U. S. P. IX to state definitely the method that should be used, the amount of sample, chloroform, and the length of time the resin is to be treated with the solvent, as the chemist would then be able to secure concordant results, and no difficulty would arise as to whether the resin was of U. S. P. quality or not.

Also, in concluding, I wish to thank Mr. R. C. Drake for analytical data, and to also acknowledge my indebtedness to Mr. J. Fred. Windolph for his many valuable suggestions.

Analytical Laboratories of the Norwich Pharmacal Company.

DETECTION OF SMALL QUANTITIES OF GLYCERIN.

Mandel and Neuberg (*Biochem. Zeit.* through *Apoth. Zeit.*) have worked out a method for detecting small quantities of glycerin, depending on the conversion of the latter into glycerose and identifying this by the well-known orcin reaction. About 2 Cc. (mils) of the glycerin solution are mixed with 3 drops of normal sodium hypochlorite solution and the mixture boiled for one minute. After the addition of three more drops of the hypochlorite solution the liquid is boiled again for one minute, then mixed, while still hot, with three drops of hydrochloric acid (1,124) and boiled for 30 to 60 seconds or until the chlorine is expelled and a perfectly colorless solution is obtained. The liquid is then mixed with an equal volume of fuming hydrochloric acid and a few crystals of orcin and boiled again, when in the presence of glycerin a violet or greenish-blue coloration will be produced. It is well known that pentoses, etc., give a similar reaction, but these products can easily be distinguished from glycerin by their reducing power on Fehling's solution. Glycerin reduces Fehling's solution only after having been oxidized to glycerose.—*Druggists' Circular.*

CONTRACTION PRODUCED BY SOLUTION OF SALTS.*

BY ALBERT BOLENBAUGH.

The paper briefly summarizes the conclusions of experimenters on volume changes, produced by the solution of salts. The table accompanying shows the contraction values of some in solution of various strengths.

It is a well-known fact that when solvent and solute are brought together to form a solution a contraction in volume is usually produced. Many workers have made investigations on these volume changes, and much has been learned regarding their nature. Tyrer accepts the following possibilities as influences to volume change:

1. Ionization.
2. Association of molecules of solute.
3. Association of molecules of solvent.
4. Hydration of undissociated solute.
5. Hydration of ions.

The method for investigating the causes of volume changes seems to have been one depending upon the use of optically active substances. This method indicated by Winther makes possible the determination of the actual volume of both solute and solvent.

Tyrer states "that no generalizations of importance have resulted, due no doubt to the complexity of the factors which come into play, all of which may vary with concentration." It may be interesting, however, to summarize some of his conclusions:

1. "In solutions in which no chemical changes of any kind occur, the specific volume of the solute is constant, independent of the concentration."
2. "The volume of an electrolyte in solution shows no tendency to assume a constant value, but goes on decreasing as the dilution increases, and in many cases becomes negative."
3. "Molecular association of the solute in solution is without influence on the apparent volume of the solute. The behavior is the same as if the molecules were normal."
4. "Solvate formation,—that is, combination of the solvent and solute,—generally causes a contraction in the apparent volume of the solute, and, further, the volume of the solute in solution generally decreases with decrease of concentration. But in some of the cases investigated the formation of a solvate appears to be without influence on the solution volume of the solute."
5. "With aqueous solutions of electrolytes it is probable that in strong solutions the undissociated molecules are hydrated, and in dilute solutions the ions are hydrated."

The following table has been compiled showing contraction values for six of the more common salts in various solution strengths:

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* Read before Scientific Section, A. Ph. A., San Francisco meeting

CONTRACTION PRODUCED BY SOLUTION.*

Grammes of salt in 100 of water	Observed volume	Calculated volume	Percent of contraction
	$NaCl$		
	Density—2.150 (Clarke)		
	(Gerlach)		
5	101.4	102.33	0.90
10	103.2	104.65	1.48
20	106.7	109.30	2.38
30	110.4	113.95	3.11
	KI		
	Density—3.07 (Clarke)		
	(Kremers)		
15	104.0	104.88	0.84
50	114.2	116.29	1.70
85	124.5	127.68	2.49
	$KC_2H_3O_2$		
	Density—1.472 (Gerlach)		
	(Gerlach)		
20	110.7	113.59	2.54
50	127.9	133.97	4.53
100	157.6	167.95	6.16
	$CaCl_2$		
	Density—2.216 (Schroeder)		
	(Gerlach)		
10	102.0	104.51	2.40
30	107.0	113.53	5.75
60	116.8	127.06	8.07
	$MgSO_4$		
	Density—2.65 (Clarke)		
5	100.10	101.89	1.79
10	100.33	103.77	3.31
20	101.75	107.55	5.39
	$Pb(C_2H_3O_2)_2$		
	Density—3.251 (Schroeder)		
	(Gerlach)		
15	104.3	104.61	0.28
30	108.8	109.23	0.39
80	124.3	124.61	0.24

REFERENCES.

Gerlach, Zeits. für anal. Chem., vol. 27.
Tyrer, J. Chem. Soc. Lond., 1911, vol. 99, pp. 871–880.
Dawson, J. Chem. Soc. Lond., 1910, vol. 97, pp. 1041–1056.
Winther, Zeitsch. physikal. Chem., 1907, vol. 60, 590.

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* These tables were compiled from values found in Smithsonian Physical Tables, 1904, pp. 131–134.

SECTION ON EDUCATION AND LEGISLATION

NOTES ON TEACHING DISPENSING.*

BY E. FULLERTON COOK, P.D.

The teaching of dispensing in colleges of pharmacy is not limited to that particular time when the student stands before a prescription counter and actually compounds a physician's prescription under the guidance of an instructor, but this paper is limited largely to that phase of the subject.

It is during this time that the training in other departments is under trial. Prescription filling is a continual test of the student's previous training in the technic of pharmaceutical manipulation, such as the making of ointments, suppositories, powders, pills, capsules, coatings for the latter, emulsions, sterilization methods, as applied to ampul filling, and the making of other sterile products, together with the many other manual operations of modern pharmacy. Also the theoretical and laboratory training in chemical reactions, and knowledge of the results following both chemical and physical combinations, are constantly demanded. In other words, it is essential, for the rounding out of dispensing training, that the student be first well grounded in the basic principles of pharmacy, both theoretical and practical, these becoming in reality a part of the elementary work in dispensing, and only when this elementary work has been covered is the student best able to understand prescription filling and to accomplish results which would be otherwise impossible.

The actual dispensing of prescriptions, therefore, assumes an important place in the last few months of a student's training, and incidentally demonstrates, as ordinary examinations rarely do, the general ability of the student, and also gives evidence of his character and ideals.

First, it is necessary that the proper equipment be provided. Utensils, weights and balances, containers, labels, wrapping paper, and all the essentials for first-class prescription filling must be at hand, and it is of the utmost importance that these be the best available, if the student is to establish high ideals for his prescription work.

Second, prescriptions must be selected for study and compounding which are typical of all forms of modern prescriptions of a routine character, and also others which are unusual and difficult, or represent incompatibilities, requiring special skill and knowledge. It is desirable to have, in addition, illustrations of Latin abbreviations and also the more common foreign types, etc., so that the training will be broad and thorough.

Third, the discipline should be strict, all work should be conducted seriously, and inferior work not countenanced or accepted. A definite plan of procedure should be adopted and enforced without exception, the penalty being the loss of all credit for the work done.

These points are emphasized because it has been found that, while some students will be willing to follow a system on request, others, and usually the majority, need the stimulation of good control and constant verification of the accuracy of their work.

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* Presented in the Section on Education and Legislation, A. Ph. A., San Francisco meeting.

The routine suggested for the filling of the prescription is as follows:

1. Study the prescription as a whole, thoroughly understand it, and decide upon the method of procedure.

2. Place on the counter all of the containers of ingredients needed, in the order to be used and on the left-hand side of the balance.

3. Fill the prescription and place the product in the container, capping it, if a bottle. As each ingredient is weighed or measured, the container is placed on the right-hand side of the balance, thus serving as a check on the ingredients added, should the compounder be called away.

4. Write the main label and attach it, together with any other labels, such as "Shake well," "Copy," etc.

5. Check the prescription to an assistant, repeating the ingredients and their quantities, and also the writing on labels.

6. Price the prescription in accordance with a definite pricing schedule. The N. A. R. D. schedule is satisfactory for the teaching of a system, and it may be explained to the student that neighborhood conditions may require, at times, either an increasing or decreasing of the amounts there fixed.

7. Wrap the prescription and attach a delivery card or label.

No effort should be spared to stimulate the best grade of work throughout, and the plan which follows is offered as especially valuable.

It is an unfortunate fact that the student's viewpoint is naturally that of desire to get a little more credit than he actually deserves. He is constantly striving to show only his best side and cover up his weaknesses, and this attitude often prevents accurate rating. In order to alter this condition, a number of students are selected for each lesson to serve as assistants. There should be at least one assistant for each five students.

These assistants are taken aside, after the rest of the class are assigned the prescriptions for the day, and especially instructed in that day's work. Each of the prescriptions is studied from the several viewpoints, and then the duties of the assistants are explained.

In order that the instructor may retain an immediate supervision over all details of the class-work, the following plan is followed: The name and desk number of each student is written in a small note-book which is carried in the hand, and the date and the numbers of the prescriptions to be filled have been inserted beforehand under each name.

The instructor starts at a definite point in the laboratory and systematically passes along the desks, the assistants following. As any student completes a prescription, he asks to have it checked, at which time the instructor takes up the main points, such as the quality of the product, that the label is up to the standard, that the containers for ingredients are on the counter, etc., and, if approved, he then enters a memorandum in his note-book that that student has filled that prescription. The assistant has been standing by his side during the inspection, and if the prescription is passed, the instructor says, "Mr. Williams, Mr. Hays will check the prescription for you." Mr. Hays makes a note on the memorandum he is carrying that he is checking Prescription No. 175461, or whatever it may be, for student No. 68, which happens to be Mr. Williams's desk number. Mr. Hays, the student assistant, at once assumes a new attitude. He is to report to the instructor in a few moments on a number of points, and he becomes alert, observant, critical, and dignified. The responsibility steadies and draws out the best ability of almost every student.

It has been a rare experience to find one who did not measure up to the requirements, if the proper instruction has been given previously, and if it had been made clear that unfairness would bring immediate dismissal.

As soon as the checking has been completed, the assistant steps into the line for the next opportunity to check, but before he is assigned a new prescription he reports to the instructor on the one assigned to him previously. This report covers the following points:

1. Every ingredient must have been the correct one and the weight or measure that directed by the doctor.
2. The product must be creditable.
3. The label must be absolutely correct, including number, date, patient's name, directions and doctor's name.

These three points are considered the most important. They must all be approved before the prescription can receive any credit, since they are all essential.

The remaining points are then taken into consideration to determine the actual mark, and this may be "poor," "fair," "good minus," "good," and "good plus." These terms were selected because it was found that students will express values much more uniformly in terms of this character than by a numerical rating. They may afterwards be assigned a numerical value, if desirable.

The additional points noted are:

4. The correct Latin form of the written prescription.
5. The use of full official English titles in referring to the ingredients, and the use of proper terms in speaking of quantities.
6. The degree of perfection reached in finishing such products as powders, suppositories, emulsions, ampuls, capsules, pills, etc.
7. The perfection of the package, including label writing, capping of bottles, and the wrapping of bottles, boxes, etc.

It has been found possible by this plan, successfully used for about ten years, to handle a section of from sixty to seventy students in prescription filling and yet check up the details of their work with great exactness.

The entire class is stimulated to do superior work, and the assistants of each day, seeing the work of from fifteen to twenty students, discover both defects and perfections which have not impressed them before, and hundreds have testified that they returned to their own desk after this experience with advanced standards and with a determination to do better work.

ORGANIZATION.

The writer does not necessarily know more than the reader, but he must organize his facts and march truth in a phalanx.

In painting, your success hangs on your ability to organize colors and place them in the right relation to give a picture of the scene that is in your mind.

Oratory demands an orderly procession of words, phrases and sentences to present an argument that can be understood by the average person.

Music is the selection and systematization of the sounds of Nature.

Science is the organization of the common knowledge of the common people.

In Nature everything lies in the mass—materials are a mob—a man's measure is his ability to select, reject or organize.—Elbert Hubbard.

SHOULD A LIBRARY READING COURSE BE MADE A PART OF THE CURRICULUM OF SCHOOLS OF PHARMACY?*

BY ZADA M. COOPER, IOWA CITY, IA.

Though it is possible to dismiss this question with a single word, either an affirmative or a negative answer deserves some explanation, some reasons for the conclusion.

A negative answer in almost every case would be based on the belief that there is not time for such a course. The courses now being given are so important that they cannot be shortened, and it probably seems quite impossible to require more in the allotted time. If it cannot be a part of two-year courses, it is to be regretted, but its practicability in a three-year course is almost a foregone conclusion.

Leaving the time element out for the present, consideration of the value of a reading course might engage our attention. Reasons why such a course would be valuable seem almost too obvious to mention. Yet, in any argument, one should not omit valuable points even at the risk of being trite. A druggist is expected to be a man of education, he needs to realize the responsibility of his position, he ought to feel a sense of duty to his fellow-men. When he goes from college out into the world of business, he must be able to practise his profession. The very word implies a special fitness. The dictionary defines profession as "that of which one professes knowledge; the occupation to which one devotes one's self; the business which one professes to understand and to follow for subsistence."

Education is a progressive thing. It is wrong to call a man educated who has acquired a certain amount of knowledge, even though that be considerable, and who thinks he need not keep on learning. To express it another way, an individual may pass all college examinations creditably, but his education is not a completed thing. It should not stop there. It cannot stop there. If it is not a progression it must be a retrogression. Students in colleges of pharmacy after graduation and registration, like students set free from any school, are prone to quit studying, failing to realize that its continuation is the price of success. If, then, keeping up study and reading means so much, the thing that will bring that about is of almost inestimable worth. Perhaps nothing will do this better than a systematic course of collateral reading during the years in college. Some may have acquired this habit before coming to college; others, it is fair to assume, have not at all the habit of reading serious, substantial literature. The youth of high-school age is likely to indulge in frothy nothings, unless parental guidance is quite out of the ordinary. Even though in his home he has had access to the best of literature and has been guided in his choice of reading, when he enters a college of pharmacy he is still young enough to be in the formative period of his life.

Professor James has made very plain what this formative period means. He says: "The period between twenty and thirty is the critical one in the formation of intellectual and professional habits, as the period below twenty is more important for the fixing of personal habits. Already at the age of twenty-five you see the professional mannerism settling down on the young commercial traveller, on the young doctor, on the young minister, on the young counsellor-at-law. You see the little lines of cleavage running through the character, the tricks of thought, the prejudices, the ways of the 'shop,' in a word, from which the man can by-and-by no more escape than his coat-sleeve can suddenly fall into a new set of folds.

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* Read before Section on Education and Legislation, A. Ph. A., San Francisco meeting.

On the whole, it is best he should not escape. It is well for the world that in most of us, by the age of thirty, the character has set like plaster, and will never soften again. The great thing, then, in all education is to make our nervous system our ally instead of our enemy. We must make automatic and habitual, as early as possible,. as many useful actions as we can, and guard against the growing into ways that are likely to be disadvantageous to us, as we should guard against the plague." In the face of such facts our course is pretty definitely marked out for us. Two or three years in college may not be enough, in some cases is sure not to be enough, to fix this habit of reading so firmly that it will not be overturned afterward; but if the percentage be ever so small, it is none the less the duty of every teacher to foster that habit.

Possibly, even in the two-year courses, a course of reading, not to exceed one hour a week, could be added. One hour a week is not much—hardly enough to dignify by the title of a course—and yet it would be better than none. When so limited it possibly could not follow any definite line, but be confined to articles in current journals, these to be anything that has a bearing on pharmacy, and should include historical, biographical, and scientific articles as well as practical ones and editorials. The primary object should be the establishment of the reading habit, and we should never lose sight of it, but other results are bound to follow. Quite a store of facts would be acquired; a familiarity with various journals and a feeling of acquaintance with the men connected with them; the nature of reading matter in particular journals and where to find certain topics dealt with. It would stimulate the spirit of investigation, of searching for information instead of always asking an instructor. This sort of reading should, of course, be assigned, and would necessitate the instructor keeping up on current literature himself. It should be possible to keep some check upon a class to be sure that the readings were being conscientiously made. Just what means would bring best results it would be hard to say, and perhaps would be best left to the judgment of the instructor in charge.

Where the college course is of three years' duration such a reading course should not be so limited either in time or character. In general the same principles apply, but besides current journals there should be assigned readings arranged along definite lines and progressively if possible. These readings should include the history of pharmacy, biographies of men of the profession, scientific articles both theoretical and applied to prescription and laboratory practice, drug legislation.

There are men practising pharmacy who say they have no time to read. Not pharmacists alone but men of other professions are making this statement. Usually it is not true at all, and when it is true it ought not to be. No professional man, no business man, can afford to *not* read. In many cases where people make such statements it will be found that they are up to date on baseball news, they know the latest scandal, they are informed about the crimes of the country in all their harrowing details. If they can find time to do this sort of reading, only lack of inclination can explain their not reading pharmaceutical literature. If business really keeps them so busy that they cannot read, then there is mismanagement somewhere. Some part of the work should be turned over to assistants in order that proprietors may read; or the clerk should be delegated to scan the journals and mark the important items. Reading is a necessity, looked at from the standpoint of dollars and cents, if from no other. Twentieth-century competition is too keen to make it safe not to know what others are doing. Perhaps this seems beside the mark when considering courses of study for students, but students of to-day are the practising pharmacists of to-morrow. We should reduce to a minimum the number of men who, when they walk out of college with diplomas under their arms, relegate their books to the attic and become fossilized pharmacists who never buy a new book or subscribe for a journal. It is not enough to tell them to read; always with some students that will prove wasted breath. A requirement carried out consistently for two or three years will teach the habit of reading to some who never had it and establish it more firmly in those who had learned it before coming to college. Of such it will come to be true that "Silently, between all the details of business, the power of judging will have built itself as a possession that will never pass away."

ABSTRACT OF DISCUSSION.

Prof. H. V. Arny: Mr. Chairman, this is one of the most practical papers I have listened to in an educational section for a long time. I think if the colleges would follow out this idea it would mean that we would have an entirely different class of pharmacists in a comparatively few years. I have students come to me and say, "I am not going to drop my education, I am going on with it." And I would say, "What are you going to do?" and the answer would be, "I am going to get some good books." I just smiled, because generally I thought the man was trying to say something to the professor that he would like to hear. I have said to them, "You will not do it; you men are occupied with other things. You get the time to spare for other things, but that will not appeal to you. There is just one way you can keep it up, and that is by taking some good journals and reading them. It is education, advanced education, and it will keep you up to date, and that is the only way you will keep up your education."

I have never seen the time when I have changed that opinion. I believe that the average pharmacist would gain much if he would pick out a few journals such as appeal to him, to his own character, and read them, thereby really getting an additional education.

If the college can acquaint the student with the different classes of pharmaceutical literature, tell them what they are, what they give, then you will get into the profession quite a different class of pharmacists within a few years, and it would be a very great improvement.

Prof. J. U. Lloyd: It seems to me that the young mind should be taught that schooling does not end when the pharmacy college course is completed; that it is then only that the education begins, that real live work begins. I personally am in favor of more education and not so much schooling, having had that experience myself, but I believe that will enable the student to face life's opportunities much better prepared. For instance, there is the phase of searching through literature. A young man will start out of college with the fact confronting him that the teachers have devoted their lives to the study of problems that have been brought before them, and only fragments of what the teachers could bring before them have really been presented. I think that the opportunity of a lifetime to the young man lies in the fact that he looks into the inside for the real things; that he will remember that the outside envelops the inside always. To think that the outside is the great side of any calling is wrong, for when he leaves the college he must remember that this is a work that he has gone into for a lifetime; that it is his great opportunity, and that it should be continued from the day he steps out of the college. I do not mean to deprecate the benefit of the college and the teachers that he has had there, but I do know this: one of my greatest pleasures has come to me in the searching for something that I could not find, in the wading through publications to find something that I knew existed somewhere and must be in print; and that much of the education, empirical education, that came to me has been that which came to me in side opportunities, in the searching for something I never found. Turning the pages over, by the title, in the reading of that which you would not read if you had not been searching for something, and one page after another is turned and you look at the index, and something strikes your eyes and you say, "That isn't what I am after," but you read it. And again you turn the page and read and you become educated; you get something you had not thought about, and about which you had no one to inform you; you study the literature that the world has given us. I commend highly this paper. I feel that such opportunities as those I mentioned here are opportunities that come to the young man; and that baseball will take a second place.

SECTION ON COMMERCIAL INTERESTS

A LITTLE TALK ON CIGARS AS A SIDE LINE.*

BY SOL. A. ECKSTEIN.

As a side line in drug stores, cigars are not only a clean but a profitable adjunct. If properly handled and well kept, you can feel sure they will yield a good return on the investment. There is practically no limit to what the business of your cigar department can be built up to, provided you adopt modern and up-to-date methods in conducting this branch of your business. No better illustration can be offered than the success enjoyed by the modern cigar stores. Why not study their methods, profit by observing their way of doing business? Incorporate as many features as you can of your own, all of which will enable you to compete on more even terms, with the ultimate satisfaction of seeing your sales increase, not alone in the cigar line, but indirectly in other lines, for the more popular you make any branch of your business, the more certain will it extend beneficially to other lines.

In the first place, your stock should be kept in an air-tight vault, preferably one with a cement floor, which tends to keep the cigars in a good condition. A humidity of between 70° and 75° should be maintained and proper moisture allowed. This can be done by installing in your vault one of the humidors which is run by electricity and dispels an equal moisture throughout the vault. It should be run at intervals about one hour at a time, and in this manner will keep the cigars in fine shape and your customers will soon realize that your stock is kept right. Of course, the size of the vault depends on the amount of stock carried. We have in our store a vault 16 feet by 24 feet, encased in double glass, cement floor and doors that shut air-tight. This vault has a capacity of 100,000 cigars. There is installed a humidor which, as stated before, is kept going during the dry weather and keeps the vault just right for moisture. Whenever the weather is damp we do not run this, but have instead a small gas stove which is run long enough to take out all superfluous moisture. The success of the cigar business depends largely on the way stock is kept, and if kept right there need never be any dead stock or dried-up cigars that are unsalable. Where the stock is small use a zinc-lined cedar chest of dimensions large enough to hold the stock, and at the same time leave space for moisteners, or a receptacle for a large sponge, which can from time to time be saturated with water.

The most important and necessary requirement is to keep in stock and offer for sale the best quality of cigars you can get and such brands as are popular and most apt to be called for. Select certain well-known brands among the five-cent, ten-cent, and two-for-a-quarter sizes and try to give your customer brands he knows about and which you can be sure will give satisfaction. Do not fill your case up with too many different brands, necessitating your customer's looking from one end of your showcase to another until he finds the brand he is looking for. As much as possible arrange your case with the five-cent brands by themselves, the tens by themselves, and the two-for-a-quarter together in one section.

Keep your showcase well filled, and do not allow any boxes with three, four, or five cigars in, to remain; take them out and replace with a full box. We usually close out the last row in the box to some one at a discount, for I find that the average customer is skeptical and will rarely select any cigars where there are only a few in the box. As one customer expressed himself to me, saying, "I don't want these, they have been picked over," so many have the same opinion. I have also noticed that a full box is rarely bought from until some have been sold out of it, and I generally make an effort to sell some out of a fresh box to get them started. I have had a box unbroken in the case in instances sometimes a week, and I wondered why. I asked one of my regular customers the reason, and he expressed himself, saying, "Why, they can't be good, or else some one would have smoked some out of the box long before." So it is well to either break into the box and smoke one or two yourself or give them to some one. You'll find the balance will sell much faster.

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* Read before Section on Commercial Interests, A. Ph. A., San Francisco meeting.

The selection of shades in cigars is an important factor, some preferring a dark oily wrapper, others the mildest kind of shade, and you must study your customers' likes and cater to them in this particular and you will hold them as steady patrons. Cigars are marked according to the color of the wrappers in Spanish terms and are as follows:

Claro or (C. C. C. abbreviated) means a very light shade.

Colorado Claro (C. C.) means a light red, a trifle darker than Claro.

Colorado (C.) designates a medium brown shade and is one that is mostly called for.

Colorado Maduro (C. M.), a much darker, mature, and ripe color.

Maduro (M.) means ripe and is the darkest shade usually sold, although I have in years gone by seen a very black, heavy-looking wrapper marked Oscuro, but this is rare and I do not remember seeing any cigar of late years of that shade. It is an erroneous idea among smokers that the Claro wrapped cigars should of necessity, on account of the light wrapper, be very mild. This is not always the case, as all cigars are sorted and packed in boxes by color of wrappers for the purpose of uniform appearance. However, the effect on the mind has a great deal to do with it, and we have customers who insist on a certain color marking in order to satisfy them that that cigar just suits their taste. Never dispute or argue with a customer, but favor him in his notions, and in nearly every case he will be better satisfied. Never try to dissuade a customer from taking the cigar he asks for, always hand out what is called for, but when he leaves the selection to you give him the best you have in the house and you will be sure to have him come back. I have in many cases guaranteed the box I have sold, telling the smoker to smoke five or six, and if they are not as good as I told him he could return the balance and select a full box of another brand, and I have never had a box returned where so guaranteed. It inspires the customer with confidence in the article, and that helps a great deal toward satisfying him.

Another great help to the cigar business is the window display. An attractive cigar display in your window will materially increase your business. Once a week, for instance, a certain popular brand can be displayed at a certain price for that day, say, for instance, a five-cent brand in boxes of 25, which retails at $1 per box, can be featured at 89 cents, special, and will attract many customers who after smoking these special-price boxes will call for that brand later; but, above all, they must be a quality cigar to bring them back for more.

Always be pleasant and receive your customers with a smile, as cordial treatment and giving good value for the money will make cigars one of the most profitable side lines in the drug store. Watch what your competitors are doing, improve on their methods, lose no opportunities when away from home to get new ideas, new methods, and keep pounding away until you have made your cigar department a success in name and in fame, as well as financially a winner.

ABSTRACT OF DISCUSSION.

Mr. Fred I. Lackenbach: The paper to me is rather an interesting one. I am sorry that Mr. Berger is not here to read his paper. Mr. Berger has issued a little book telling the people how to sell cigars, and there is one little trick in it that is very, very good. There is a comic picture. It says the cigar is like booze, and that by taking a moistener and adding a little sherry wine to it, it increases the flavor and increases the sale.

A broken box that carries three or four cigars will hardly ever sell cigars. It is again true that a smoker will not take cigars from a full box. Why it is I don't know. I have laughed about it several times. We keep the case full and also break into a full box and take out some and smoke them ourselves. The psychology of that thing is rather peculiar. You would not think it true that a strong-minded man will not buy a cigar out of a full box. Again, the thought comes, have you ever noticed the window displays of the United Cigar Company? That display would be good for any kind of merchandising. They have a frame wherein which the literature can be changed; they use the same kind of frame and keep the window full. It is an easy window to dress. Personally I am attempting the same thing in my place, and I think it will be a success. It does not take very much stock to fill a window, and the window is very attractive. I try to get all the good out of these meetings I can, and I go from one place to another and see if I cannot pick up something. I have done it from New York to California, and all over the country I have been taking items for my own use.

Again, I cannot agree with cutting prices. I hold up the prices on all the merchandise I carry. That is the trouble with the pharmacist. He puts himself and his services and his goods to the public too cheaply. It does not sell any more goods to sell six five-cent cigars for a quarter. If you give the patron better value and sell him five for a quarter, he will buy just as many of them, and at the end of the year you will find that your profits are greater.

I do not believe in carrying large stocks of cigars. I think the turn-over is where you win. I think that is another mistake. I am going to speak about keeping up stock. It seems rather a source of pride to the average pharmacist that he has a very large stock. I think that is poor business. I am in the store very little and my head clerk does the buying. I tell him, "Don't buy too much stock, because it is the turn-over where you make your money." If you do a business of $25,000 a year, which seems to me to be the average business, as was read in the paper yesterday—it may be more, but we will say they do $25,000 a year of business, and supposing that is done on a $5000 stock, how much more money will that man have at the end of the year if he carried a $25,000 stock?

We who are in the cities are nearer the source of supply and it is absolutely unnecessary to carry more stock than is needed from day to day, and I have gone through the experience of filling up my place with a lot of stuff at 5 percent discount and having it so long that the discount is eaten up at the end of the year, and 5 percent off in 30 days and 60 days—take your pencil and figure out where you come out at the end of the year. It looks good, yes, 10 off looks fine. But when the 12 months are up, that does not pay. It is better to discount your bills 1 percent, as we do here, and keep the stock moving.

SELLING YOUR OWN PREPARATIONS.*

BY F. W. CONNOLLY.

Salesmanship is such an important factor in the consideration of the subject before us, " Your own non-secrets as compared with other lines," that I shall ask your indulgence for one or two illustrations before concluding my paper.

Like all questions, there are two sides to it, each possessing its advantages.

The ready-made line economizes time and original investment, also whatever advertising may accrue to them by being handled in other stores.

These apparent advantages are offset by a good profit to the manufacturer; your store and energy devoted to building a business for the aforesaid manufacturer, and your protection is insured only by a bond or an agreement, with damages if broken.

On the other hand, our own preparations afford an opportunity for individuality and excellence, both of which should be improved to the fullest extent. By so doing we are constantly building a reputation for ourselves, instead of developing an adversary to bind us hand and foot at some subsequent period.

The perfecting of a preparation of our own is a delight to the man who loves his business. A line of such good preparations assists our business directly and indirectly.

Our initial investment is greater, but we will save from one hundred to two hundred percent on manufacturers' prices.

The store can recommend with more confidence goods which they know all about than they can goods which can be changed at the will of the manufacturer.

Have all preparations bearing your name of such high efficiency that it will be difficult to substitute against them.

Have the appearance of both the preparation and the package or container such as will appeal to a customer.

Your guarantee of satisfaction should enable you to make sales in most instances.

Have several preparations of the good sellers. We have a " Little Folks' Cough Syrup " for children, and four others, besides our emulsions; some contain both chloroform and an opiate, others have neither of the above, and we try to assist a customer to select from our line, instead of comparing our one kind *versus* the one advertised in the newspaper. Our smallest bottle, which we guarantee, sells for fifty cents.

The suggestion " take both " often sells our preparation as well as the advertised article and has the advantage of the customer having what he went after, and if you recommend trying yours first and if it proves effective tell the customer that you will be glad to return the price paid for the other (which you probably sold at the wholesale price).

We sold both toothache drops and toothache gum to so many persons that we were ashamed of ourselves, as we knew that either one would probably relieve the pain, so we prepared a toothache jelly, two drachms to sell for twenty-five cents, and it frequently sells against the ten-cent drops or gum.

Considerable business can be done by having one preparation where there is

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Read before Section on Commercial Interests, A. Ph. A., San Francisco meeting.

a limited demand, such as a canker cure for thirty-five cents, a gargle for the same price, a black-eye remedy, etc.

In ointments, however, we have three of our own adapted for various conditions.

It is pleasant and profitable to sell your own goods.

It is the process which develops a Hudnut and Grove and many others.

Note the long list of drug preparations which require to be physiologically tested.

The Stevens bill will help the advertised goods, as druggists will not be so particular to replace them when they show a profit.

INEFFICIENT EFFICIENCY.

Efficiency experts are telling manufacturers, merchants and railroad operators that they display business efficiency of only fifty to seventy-five percent. Their criticisms are absurd in the light of the experience of New York City. What manufacturer or contractor, though only fifty percent efficient in his methods, would neglect to provide for the prompt payment of casual labor? The city of New York has been bossed for several years by the most noted efficiency experts in the country, but they have been unable to devise a means of paying casual laborers for shovelling snow.

It is always a source of wonder why professors of economics and other efficiency experts do not become rich, but the man who writes books and magazine articles on making money seldom makes much. When an efficiency expert tries to run a factory he usually strangles it with red tape. He tries to account for everything and it usually costs more to prevent waste than the loss would amount to in practice. Efficiency experts are useful in their proper sphere. An outsider often sees leaks which those who have fallen into a rut do not suspect.

Every business man whose affairs are complicated or large should periodically have his plant, his stock and his system inspected by an outsider. The bank with which he does business often has a man well fitted to advise. He should also have his books audited regularly by a skilled accountant. Neither the accountant nor the efficiency expert is likely to possess the broad view and other qualities that go to make a man successful in business, but they can help the business man just as good tools assist a mechanic. It is an old saying that successful men make mistakes and those who do not make any keep books for them. The efficiency expert or trained accountant holds up his hands in horror when the boss puts money in his pocket to pay off casual labor before the accounts are audited. New York City cannot clean its streets of snow because its efficiency experts insist on paying casual labor after auditing the pay roll—and after the men have starved.—*New York Commercial.*

AN EIGHT-BARRELLED MOTH-BALL SALE.*

BY WILLIAM J. LOWRY, JR.

The business was old, the boss was older, and the building was older still; the store was cold, the boss was colder, and the weather was colder still.

The business had been founded about fifty-five years back and considerable conservativeness had accumulated in the interim, so on this cold morning in March, when the signs of spring betokened the approaching need of thinner clothes and the consequent shedding of the thicker ones, their necessary protection from the attacks of moths suggested taking stock of the preservatives used for that purpose.

Naphthalene in the form of moulded balls resembling the old cough remedy Sal Prunelle in appearance, but with the difference that "Every little moth ball has an odor all its own," had been coming into use as a cheap substitute for camphor and in a good many places was selling quite well.

The stock consisted of a few pounds left over from the last season, and the question as to how much to buy was being discussed.

The senior member of the firm objected to handling them at all, mainly on account of the odor, and the season's selling usually consisted of one dozen one-pound wrapped and double-labelled boxes bought from the jobber at seventy-five cents a dozen and sold at ten cents a box.

The other druggists were selling them at five cents for a twelve-ounce carton, and the small department stores were selling them in one-pound manila bags at five cents a pound; bargain day beginning only four and seven-eighths, or, at the lowest, four and three-quarter cents.

Towards the end of the previous season the public positively refused to pay ten cents a pound for a box when they could go down the street and get them for five cents in pound bags. All moth balls looked alike to patrons, and even old customers began to reason that if moth balls cost double, other things might also cost in the same proportion; so a splurge was made and a hundred-pound bulk lot was purchased in order to be able to sell them at five cents a pound.

Well do I remember the box in which they came, for I had to open it, and the villain (he couldn't have been a gentleman) who nailed it up had used about a thousand (count not guaranteed) spikes in sealing it against inspection and almost against opening, and they were used impartially, without fear or favor, on top, bottom, sides, and ends of that coffin-like box.

How I wished it was his casket, for I skinned my knuckles, ruffled my temper, tore my finger-nails, broke the hatchet and hammer handles, smashed at least one of the commandments, chipped the chisel, and littered the floor with nails, splinters, and cuticle, and dampened it with perspiration and gore!

We wrote to the jobber and told him of those nails, told him of their net weight, measure and numerical count and probable cost, told him of their assorted sizes, told him of the approximate cost of the time consumed in driving them in, told him of my afflictions, told him of my peeved disposition, and told him of a good many other things which I have since forgotten, and finally told him that if we were not to sever diplomatic relations he'd have to "fire" the scoundrel who nailed up that box.

It was late in the season, yet we sold practically all of those balls at five cents a pound.

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On this particular morning we were discussing the advisability of anticipating the " Buy a bale of cotton " movement by buying a barrel of moth balls.

We decided to buy a barrel, and we bought it and we sold it; we bought another and we sold it; we bought another and we sold it, and the senior member forgot about his dislike of the odor of naphthalene.

The next season he gave his consent to buying not one or two or three, but five barrels, and we sold them.

In reviewing the sale of the three barrels, he said it wasn't the balls, it wasn't the bags, it wasn't the display so much that sold them, but it was William's signs.

Looking backwards, I'm sure he was very nearly right, for although the balls, the bags, and the display were absolutely necessary, yet I feel that the signs turned the trick.

We had a monopoly of the moth-ball business of that section of the city. The people must have had a large supply of habiliments which needed preserving, or they must have used the balls for other purposes.

There were rumors that the kids used them for marbles after cutting off the ends, and that the girls used them for necklaces after threading them with the pink string with which the packages were wrapped, and there is one instance, for which I can vouch, where an old colored woman used three of them at one time for cream almonds, but quickly spat them out and said, " Never again will I taste something unless I am invited."

The boss was the treasurer of the church and one of the deacons, and what he lacked in stature, *embonpoint,* and avoirdupois he made up in fairness and squareness and goodness, and he decided that we would not pay the printer a half cent for his twelve-ounce capacity cartons, but would buy paper parchment bags and give the customer a full pound for his nickel.

So we made a nice display of the white packages and loose balls, and, as the window had glass doors which could be closed tightly, there was very little odor in the store.

We then put in my sign, which read:

16 Ounces Make One Pound.
Moth Balls,
5 Cents a Pound.

In a short time we sold our barrel. The fact that we gave a full pound, which cost us no more than the twelve-ounce cartons cost others, made us customers, yet it somewhat riled the brother druggists, because they had loaded up on cartons and did not want to sacrifice them and use bags. Their sentiment was voiced by the man Friday who came from one for two ounces of " Peafowl's Fluorides " to make up a shortage on a prescription and said, " You all ain't playing fair about that there sign with 16 ounces to the pound on it."

In changing the display to another window, around the corner, a sign was used which read:

Moth Balls Are Selling Fast,
Get a Pound While They Last.
Moth Balls—5 Cents a Pound.

On different occasions other signs were used. One especially caused a good many smiles and helped the sales. In fact, we always tried to wrap up a smile with each sale of goods, and, while no burlesque or buffoonery was countenanced, yet a good clean laugh or a pleasant smile helped and paid.

This one read:

Did You Ever Hear a Moth Bawl?
Moth Balls Here at 5 Cents a Pound.

Another read:

We've Lots of Calls
For These Moth Balls,
5 Cents a Pound.

Another read:

Moth Balls Fresh and Moth Balls White,
You Get a Full Pound Here All Right.
16 Ounces for 5 Cents.

The signs were written at the store in large, legible capital letters, and only one or at most two were used at a time, and the display was changed every week, the window stock sold when taken out, and new lots put in the windows on the other street.

The sales were increased from twelve pounds to a ton of two thousand pounds a season, and the cost of two five-cent bags was the same as that of one ten-cent box, the profits being in the same proportion.

More people were brought into the store and the general business helped; especially did our sales of kindred lines increase. We sold more camphor than ever before, because the moth balls suggested that to those who did not use them. We also sold quantities of cedar chips, tar paper, fly paper, fly killers, insect powder, insect powder guns, and even dog soap.

The same tactics were followed along other lines of merchandise and results always followed, so our old, looking-backward song:

Moth balls were selling slow,
In fact, the stock was never low,

was changed to our looking-forward song:

Moth balls are selling fast,
We hardly think our stock will last.

The sign that caused us to buy insect powder guns in 5-gross lots instead of by dozens read:

GREAT GUNS
10 Cents.

THE POWER OF PUBLICITY.

One of the speakers at the recent Rochester convention of the National Public Health Association paid the following remarkable tribute to "printers' ink," as a factor in the prevention and cure of disease:

"Printers' ink should be included in the pharmacopœia. Wisely used, it prevents tuberculosis and builds hospitals to cure it. Thousands of babies are saved every year by its educational force. It is the only universal agency for the treatment of diseases in the community at large. You may cure the individual in the sickroom; you must treat the community through the newspapers. As soon as you begin to use print for any public or educational purpose, your opponents will dub you an 'agitator.' But it's a good thing to be. Every advertiser is an agitator, whether he agitates the public mind in favor of pickles or public health. Don't let the term bother you. It's really a compliment. Use printers' ink in large quantities, and don't be afraid to pay for it."

CONTRIBUTED AND SELECTED

PHARMACOPŒIAL STANDARDS FOR WHISKY AND BRANDY.

BY GEORGE M. BERINGER, A.M., PH.M.

The resolutions adopted by the various associations of druggists in favor of the retention of standards for whisky and brandy in the United States Pharmacopœia indicate that this is considered one of the topics in which pharmacists are especially interested.

The question of proper pharmacopœial standards for these distilled liquors has been unnecessarily beclouded by other questions that have been introduced in the discussion.

As the member of the Committee of Revision to whom was referred the subject of standards for whisky and brandy, I am of the opinion that there should be presented, for the benefit of the interests engaged in the discussion, a review of the studies this assignment entailed. Hence I have concluded to publish an abstract of the " Report of the Referee on Whisky and Brandy."

The preparation of a satisfactory monograph on whisky is beset with peculiar difficulties. The referee admits that it has been one of the most perplexing of the many pharmacopœial problems with which he has been personally associated.

Considerable of the literature on the subject has been written in behalf of trade interests engaged in a strenuous effort to obtain commercial advantages, and is so tinctured with partisanship as to becloud the scientific facts necessary for a pharmacopœial standard. The Pharmacopœia *must not become entangled in any such trade controversies.*

The referee believes that it is his duty to present a report that shall be based upon an impartial study of the subject and upon the actual data obtained by examination of commercial products of satisfactory quality. What is needed is a definition, description, and tests that shall correctly define, cover, and include any properly produced whisky that may be dispensed when " Spiritus Frumenti " is *prescribed for medical purposes,* irrespective of which cereals were used in the mash or what form of apparatus was used in the distillation, or the state or country where it was produced. Such a standard, to be satisfactory, must be based upon such facts as are fully established, and not upon academic theories or preconceived views.

The following general observations are initial propositions which have a bearing on this question. These must be given due consideration as having a decided influence on the draft of a pharmacopœial standard. They further serve to illustrate some of the difficulties of the problem.

Whisky is of such a complex chemical composition that it is difficult to compass it by the ordinary rules of procedure of the Pharmacopœia. Approximately, about 99 percent of whisky is a mixture of ethyl alcohol and water which our accepted methods enable us to determine with sufficient accuracy. The remaining 1 percent or less consists of non-volatile extractives and numerous volatile constituents of complex and more or less unknown composition and present in ever-varying proportions. The presence of these volatile substances, which in the more recent literature have been named "congeners," in at least a substantial amount is essential to whisky.

The causes of congeneric variation are numerous. The various mixtures and quality of the grains used and the proportion of diastase in the mash, the character of the yeast, the time and temperature of the fermentation, the method of distillation, the distilling apparatus, and even the atmospheric conditions, are factors permitting of innumerable changes and consequently innumerable variations in the amount and character of the congeners present in the product.

It is difficult to gauge the degree to which rectification and compounding have been carried on or to what extent these should be restricted. For several centuries the trend of the manufacture of whisky has been toward either the masking of or the elimination of a portion of the congeners. The earlier attempts to render distilled spirits potable were efforts to overcome or drown out the obnoxious odor and taste in the crude distillates of those days by the addition of aromatic and sweetening flavorings in relatively large amounts.

These attempts at masking were soon supplanted by improved methods of manufacture that aimed at the elimination of a large portion of the congeners produced. The first step to be applied in the process of elimination was fractionating the distillate by which the aldehydes and " fusel oil " congeners were largely separated in the rejected fractions. In the whisky industry, as in other industries, marked progress has taken place in the character of apparatus and machinery employed. In modern distilleries the improved column still has generally replaced the older types of stills.

The second step in the process of elimination of " fusel oil " congeners is rectification. Originally this was carried on as a distinct industry in an establishment entirely separate from the distillery. Rectification originally consisted in passing the grain distillates through a series of leaching tubs containing charcoal. Since 1872, the government has sanctioned, by congressional enactment, the use of improved apparatus by which the rectification may be carried on at the distillery as a part of the process of manufacture, thus combining in one completed operation both the distillation and the rectification.

During all of these years the effort has been to eliminate as much of the higher alcohols, " fusel oil," as possible. The tendency of the manufacture of whisky has been gradually but surely toward the production of a " lighter " or milder type of distilled spirit from grain, and the taste of the public has been cultivated in that direction.

The taste of the public has likewise been cultivated toward the modified flavors produced by " blending " in which the art of the compounder is exhibited. It is estimated that probably 90 percent or more of the whisky consumed is blended or mixed grain distillates.

In its standard the United States Pharmacopœia must necessarily recognize the changes that have occurred in the character of the product known as whisky because of improved apparatus and processes, changes in trade conditions, and the demands of cultured palates. Its standard must of necessity define what is actually in the market and what is used in medical practice, and not what was originally known as whisky or the primitive " usquebaugh."

It is likewise difficult to gauge the changes due to the aging or maturing of whisky and to determine the proper minimum age limit. It may be considered as universally conceded that the palatability of whisky is improved, if not mainly due, to changes which occur during the period of maturing or storing. To what modification of its components or to the production of which " secondary products " this improvement is due cannot be definitely stated.

The changes that take place during the aging are, as yet, but imperfectly known. However, we do know something of these and of their effect on the potability of the whisky. The distilled spirit dissolves out of the wood a small amount of tannin, wood extractive, and color, and acquires a distinct woody flavor, detectable by both taste and smell. The color and flavor are materially influenced by the extent of the charring of the interior of the barrel, and the wood extractive is increased by elevating the temperature, by agitating the barrels, and by extending the period of storage. In whisky that has been matured in oak barrels the woody flavor is not only distinctly perceptible in the liquid but persists in the residue left on evaporating a portion on the water-bath. The tannin, wood extractive, and coloring thus acquired are undoubtedly *additions* to the distilled spirit, but by reason of the many years that this practice of storing in wood has been carried on, these have become considered as *essential ingredients*, and the associated woody flavor is accepted as part of the composite flavor of whisky.

The percentage of acid present in whisky at the time of its distillation is variable, depending on the extent to which the fermentation has been carried. During the period of storage the acidity is increased for several years by the gradual oxidation of a portion of the alcohol, and thereafter appears to remain stationary. Esterification is likewise gradually going on during the maturing period, and the acid consumed in this process probably compensates that which is continuously formed by oxidation. The esters formed play an important part in modifying the odor and taste of the product.

Chemists estimate the acids present as acetic acid, and the esters as acetic ether. Nevertheless, it is well known that other acids are present in small amounts and also that a series of higher alcohols, collectively spoken of as " fusel oil," are present in relatively minute quantities, and that these are subject to the same chemical changes as are the acetic acid and the ethyl alcohol; consequently, the production of a number of compound ethers must be conceded. These acids and esters aid materially in rendering the spirit potable by adding the flavor or bouquet thereto, and, although strictly *additions*, they are considered as *essential ingredients* of whisky.

The Federal laws relating to distilled spirits have been enacted primarily for the purpose of collecting the tax thereon, and only incidentally do they consider the question of standards. From the viewpoint of the revenue collector, the tendency would be to encourage the production and to broaden the definition of whisky so as to include the widest range of alcoholic distillates that could be used under that title. The pharmacopœial viewpoint is the necessity of fixing a reasonable and practical standard of purity and quality for a product used for medical purposes.

For beverage purposes a wider latitude could with safety be permitted than would be permissible in a standard for a medicinal article. The requirements for whisky as a medicine should be more restricted and exacting, as in such use there is constantly present the necessity for estimating its pharmacodynamic action. With beverages the Pharmacopœia is not concerned, nor does its authority contemplate the control of standards for such purposes. For this reason there should be incorporated in the monographs on whisky and brandy a statement that the standards are applicable to these products when prescribed for medical use.

The pharmacopœial standard should be correct, reasonable, and practical, and should work no unnecessary hardship on the producer, and should protect the pharmacists from uncalled-for prosecutions. The manufacture of whisky is a legalized industry commonly conducted on a very large scale and with enormous investments. The quantity of whisky consumed as a medicine bears but a very small ratio to the total production. The pharmacist is limited in his source of supply, and, even under the most favorable conditions, he can have little or no influence on the quality of the commercial product.

The duty of the Pharmacopœia is to supply a proper standard that will not unnecessarily restrict the pharmacist's supplies and will enable him to form a correct judgment of the purity and quality so as to protect the dealer and consumer from deception. "Such a standard should be sufficiently liberal to enable compliance without becoming burdensome, but at the same time constitute a safeguard against the use (medically) of the compounds commonly sold under the name of whisky."

Accepting the monograph on Spiritus Frumenti of the U. S. P. VIII as the basis for a revised monograph for the U. S. P. IX, a critical examination of the language and statements contained in the article on whisky now official appears to be imperative. Equally important is the confirmation of these statements by the results of examinations of commercial products. Attached to this report is a synopsis of recent examinations of nearly two-score samples of commercial whiskies. This serves to illustrate some of the criticisms presented.

> THE TITLE.—"Spiritus Frumenti," literally "spirit of grain," is appropriate and should be retained.
>
> THE DEFINITION.—"An alcoholic liquid obtained by the distillation of the mash of fermented grain—such as Indian corn, rye, wheat, and barley, or their mixtures."

This is subject to several criticisms. Whisky must be *potable,* and "an alcoholic liquid obtained by distillation" as prescribed is not the whisky contemplated until rendered *potable* by reduction to the proper alcoholic content and matured, and this distinction should properly be included in the definition.

As it is the mash that is fermented, the wording should be changed from "mash of fermented grain" to "*fermented mash of*——"

The minimum period of aging should be a *requirement* of the definition and *not a recommendation* included in the description, and accompanying such a statement in the definition should be added such restrictions on the method of aging as it may be deemed wise to officially require.

> THE DESCRIPTION.—"An amber-colored liquid, having a distinctive odor and taste, and a slightly acid reaction."

The statement as to color is probably as clear and descriptive as it can be made, as the varying depths of color or shades of amber permissible cannot be described, and colorless distillates are excluded.

The statement here as to acidity is likewise accepted.

The statement, however, regarding odor and taste is subject to the criticism of being too general and too indefinite a description of the odor and taste of whisky. It might be claimed that the "distinctive odor and taste" is the distinctive odor and taste of ethyl alcohol, which is the predominating ingredient. I would recommend that this be modified to read—"having the odor and taste of diluted alcohol modified by flavors derived from the grain, extractives from the wood, and substances naturally formed during the storage."

> "Its specific gravity should be not more than 0.945 nor less than 0.924 at 15.6° C. (60° F.), corresponding, approximately, to an alcoholic strength of 37 to 47.5 percent by weight or 44 to 55 percent by volume of absolute alcohol."

This statement follows the customary method of determining the alcoholic content of such distilled spirits by taking the specific gravity of the liquid by any of the accepted ways and calculating from the alcohol table the percentage of alcohol present. This ignores the variation introduced by the content of solids and the modifying influences of the other volatile substances present. This error is certainly very slight and, with the restrictions on the solids proposed, will be reduced to a minimum that is negligible, and, as the method has the sanction of governmental and business usage, it can be continued.

The permissible alcoholic content, "44 to 55 percent by volume," is entirely too wide a range for a medicinal product. A whisky of 110 proof is entirely too strong for consumption, and verges on the border of being non-potable on that account. A number of the samples examined (notably Nos. 13, 14, 15, and 16) were stored goods not yet reduced, and the taste of these showed distinctly the undesirability of such high alcoholic content. The bulk of the whisky is sold to the consumer at 90 to 100 proof (45 to 50 percent alcohol by volume), and the pharmacopœial range of alcohol content should not vary greatly therefrom. From 45 to 51 percent would be a proper limitation.

The present method of stating gravity at the temperature of 15.6° C. is continued in the monograph submitted, although the preference of the referee would be to give such at the official normal temperature.

> TESTS.—"If 100 Cc. of whisky be very slowly evaporated in a tared dish on a water-bath, the last portions volatilized should not have a harsh or disagreeable odor (absence of more than a trace of *fusel oil* from grain); and the residue, when dried at 100° C. (212° F.), should not weigh more than 0.5 Gm. This residue should have no sweet or distinctly spicy taste (absence of *added sugar, glycerin,* and *aromatic substances*), and it should almost completely dissolve in 10 Cc. of cold water, forming a solution which is colored not deeper than light green by a few drops of ferric chloride T. S. diluted with 10 volumes of water (absence of more than traces of *oak tannin* from casks)."

This paragraph contains some misleading statements and merits the most critical scrutiny. The first statement therein is given as a test for the absence of more than traces of fusel oil. This is only one of the organoleptic tests that have been proposed for detecting fusel oil. It is comparable with the evaporation of a portion of the spirits by rubbing on the palm of the hand or evaporation on a piece of bibulous paper, and is unscientific and insufficient for the purpose proposed. Relatively large amounts of fusel oil would escape detection by such a crude method.

If only a qualitative method is to be adopted for the detection of excess of fusel oil, there are several tests which are preferable; for example, either of the following:

1. 20 Cc. of the sample mixed with 50 Cc. of distilled water in an Erlenmeyer flask and heated to 25° C., the contents then violently shaken, and the odor and taste noted.

2. Shake 10 Cc. of the sample with 20 Cc. of water and 10 Cc. of ether. Allow the mixture to stand, separate the ether layer, and evaporate this on a watch crystal. No odor of "fusel oil" should remain after the ether has evaporated.

If it is desirable to retain only one qualitative test for this purpose, I would prefer the latter.

In the Eighth Revision of the United States Pharmacopœia the residue from

100 Cc. of whisky was increased from 0.25 Gm. to 0.5 Gm. The reason for this change is not evident. Properly-made whiskies, even after long storage in wood, do not yield residues approaching this maximum. Blended whiskies and compounded whiskies, to which excesses of coloring and flavoring have been added, may yield a residue of 0.5 Gm. or even greater.

Sample No. 13, which was stored more than six years in wood, yielded only 0.260 Gm., and if reduced to 50 percent alcoholic strength the residue would have fallen below 0.250 Gm.

Sample No. 26, after six years' storing, residue 0.210 Gm.

Sample No. 6, seven years old, residue 0.233 Gm.

Of the blended whiskies, which contained added coloring and flavoring, the residues frequently exceeded 0.5 Gm. This is seen in samples Nos. 19, 20, and 33.

With entire safety the residue from 100 Cc. of whisky can be reduced to 0.3 Gm. or even to the old standard of 0.25 Gm. Any whisky exceeding this limit would show the presence of added foreign materials.

The residue also gives us valuable information as to the character of the whisky. In a whisky consisting entirely of grain distillates aged in wood the residue is brown in color, dry, and scattered over the bottom of the evaporating dish in leaf-like patterns or spotted deposits. Whiskies containing added caramel coloring leave a more or less shining deep-brown residue. If only a small amount of caramel is added it is insufficient to entirely destroy the characteristic appearance of the residue described above, and the residue exhibits in spots the characteristics of both kinds of coloring. If the coloring is entirely caramel, or if the caramel is in excess, then the residue is in the form of a shining, smooth solid extract, more or less pasty and sweet, especially if prune juice or similar material has been used as a flavoring.

The requirement that the "residue should have no sweet or distinctly spicy taste (absence of *added sugar, glycerin,* and *aromatic substances*)" is correct and should be retained.

The next requirement, however, that "it should almost completely dissolve in 10 Cc. of cold water," is not correct. In compounded whiskies, in which the residue is composed largely of added coloring and flavoring, the residue is practically entirely soluble. However, in whiskies in which the residue is due to material absorbed from the wood during storage this is not true. A reference to the appended report will show that in those whiskies which are compounded the insoluble residue is very scant. In the examination of these samples the insoluble portion of the residue was determined in a number of cases. The residue left on evaporation was thoroughly rubbed down with 20 Cc. of distilled water, filtered, and the dish and filter washed with an additional 5 Cc. of water. In a number of these samples the insoluble residue amounted to from *19 to 40 percent* of the residue. This statement must be either eliminated or amended to comply with the facts.

Exception must likewise be taken to the next statement, that the solution of the residue in water "is colored not deeper than light green by a few drops of ferric chloride T. S. diluted with 10 volumes of water." In all whiskies which are aged in wood for four years or more sufficient of the wood tannin is absorbed to give in this test a distinct greenish-black coloration. In compounded whiskies this color is usually brown, with little or no distinct green tint. The pharmacopœial statement, instead of being a negative one, should be a positive one, requiring that the solution of the residue *must yield a green coloration* on the addition of ferric chloride T. S., as an evidence of the proper maturing of the whisky by storage in wood. The limitation on the amount of residue will eliminate the possibility of an excessive amount of tannic acid.

> "If 50 Cc. of whisky be shaken vigorously in a stoppered flask with 25 Gms. of kaolin, and after standing half an hour, be filtered, the color of the filtrate should not be much lighter than that of the whisky before treatment."

Exception is taken to this test for caramel. If kaolin of proper absorptive test be used in the quantity directed, the result will be a magma from which very little liquid can be filtered. If the test be retained, then it should be changed, directing 5 Gms. kaolin to 50 Cc. of whisky. It is to be noted that a *slight reduction* in the coloring occurs with all samples of whisky.

The color in whisky is due to added coloring, either caramel or that dissolved from the charred barrel. The use of caramel antedates by many years the use of the charred barrels for this purpose. Either of these colorings is harmless, and their use has been sanctioned by Federal statutes and decisions. If the entire residue consisted of coloring, it would not amount to more than from 0.2 to 0.3 percent. Since the amber color is required, it is immaterial if this color be produced by the addition of small quantities of burnt sugar or of a similar coloring substance prepared by charring wood. The quantity of either of these present in whisky answering the pharmacopœial requirement would be exceedingly small. Since both are harmless, and the use of caramel is provided for by laws and regulations of the government, I doubt the wisdom of the Pharmacopœia adopting a provision that would exclude caramel from whisky and raising an issue between its standard and the government enactments. My recommendation is that this paragraph relating to test for caramel be eliminated from the pharmacopœial tests.

> "To render 100 Cc. of whisky distinctly alkaline to litmus, not more than 1.2 Cc. of normal potassium hydroxide V. S. should be required (limit of *free acid*)."

A compounded whisky with practically no acid or an immatured whisky would meet this requirement, as no minimum limitation is fixed. On the other hand, some very good grades of whisky may slightly exceed this percentage of acid. (Note samples Nos. 21, 22, and 23.) It is to be noted that the compounded and blended whiskies are exceedingly low in acid content, as, for example, samples Nos. 32, 33, 37, and 39. A minimum and a maximum limit should be given, and the maximum might with safety be somewhat increased.

The method of applying this test is misleading. On adding solution of potassium hydroxide to whisky the amber color is deepened and it is difficult to note the end reaction. Litmus is not a good indicator for the purpose. I would recommend that in stating this test 100 Cc. of whisky be diluted with 200 Cc. of distilled water and the titration be made with tenth-normal potassium hydroxide V. S., and that phenolphthalein T. S. be used as indicator. The reaction is far more distinct under these conditions than would be possible with the present directions.

To meet the criticisms and comments as submitted above, the following monograph was reported:

SPIRITUS FRUMENTI.

WHISKY.

A potable alcoholic liquid obtained by the distillation of the fermented mash or mashes of cereal grains (wholly or in part malted)—such as maize, rye, wheat, and barley, or their mixtures. Whisky intended for administration as a medicine should have been stored in wood containers for a period of not less than four years before it is used, and should conform to the following characters and tests:

An amber-colored liquid, having the odor and taste of diluted alcohol modified by flavors derived from the grain, substances extracted from the wood or naturally formed during the storage, and a slightly acid reaction.

Its specific gravity should be not more than 0.943 nor less than 0.932 at 15.6° C., corresponding, approximately, to an alcoholic strength of 38 to 43.5 percent by weight or 45 to 51 percent by volume of absolute alcohol (see Appendix, Alcohol Tables, page —).

Shake thoroughly 20 Cc. of whisky, 20 Cc. of distilled water, and 10 Cc. of ether; allow the mixture to stand until separation has taken place. Separate the ether layer and allow it to evaporate spontaneously on a watch crystal; the residue should not have a disagreeable or irritating odor (excess of *fusel oil*).

Evaporate 100 Cc. of whisky in a tared dish on a water-bath and dry the residue at 100° C. to constant weight; it should weigh not more than 0.3 Gm. This residue should not have a distinctly sweet or spicy taste (absence of *added sugar, glycerin,* and *aromatic substances*). If the residue be treated with 10 Cc. of cold distilled water, the filtered solution should give a greenish-black coloration upon the addition of a few drops of diluted ferric chloride T. S. (1 in 10) (*oak tannin* from barrels).

100 Cc. of whisky diluted with 200 Cc. of distilled water should require for neutralization not less than 6 Cc. nor more than 15 Cc. of tenth-normal potassium hydroxide V. S., using phenolphthalein as indicator (limit of *free acid*).

BRANDY.

The statements in the preceding part of the report, although written on the subject of whisky, apply with almost equal force to the subject of brandy. A few additional comments, however, are necessary upon a proper monograph for brandy.

TITLE.—The pharmacopœial title, "Spiritus Vini Gallici," has been retained in the United States Pharmacopœia and in the British Pharmacopœia. As it is not the intent to restrict the brandy of the Pharmacopœia to French brandy only, "Gallici" should be taken out of the title. For the same reason, the synonym, Cognac, should not be given in the Pharmacopœia. A change in the pharmacopœial title evidently is necessary. The Austrian Pharmacopœia restricts its brandy to the cognac and takes as the title, "Spiritus Vini Cognac." The German Pharmacopœia and the Swiss each take as titles, "Spiritus e Vino," with "Kognac" and "Cognac" as synonyms. Neither of these seems to be acceptable for the United States Pharmacopœia.

It has been suggested that the title be made "Spiritus Vini," but this is very objectionable, because the title, "Spirit of Wine," is commonly applied to alcohol, and its adoption for brandy would lead to serious confusion. Chairman Diehl has suggested as a title, "Spiritus Vini Vites Viniferæ." This title appeals to me, but we are confronted by the fact that the *Vitis Vinifera* and its cultivated varieties are not the only grapes from which brandy is made. The American species, *V. Labrusca* and *V. æstivalis,* and cultivated varieties are also sources from which many wine grapes are now cultivated. For this reason, the validity of the title suggested by Chairman Diehl may be questioned.

Your referee is of the opinion that a distinctive title should be coined for brandy that would designate it as a spirit of grape wine, and would not restrict brandy to that produced in any one country or district or that from any one grape. This leads to a suggestion that the title be made "Spiritus Vini Vitis."

It is well known that French brandy has always been colored with caramel, and that a special syrup of sugar partly caramelized is used for this purpose. The Austrian Pharmacopœia and the Swedish Pharmacopœia, recognizing this fact, permit in their official brandy, which is cognac, a residue of 1.5 percent. The United States Pharmacopœia of 1890 likewise permitted a residue of 1.5 percent, and none of these pharmacopœias have tests that would exclude the presence of caramel. The U. S. P. VIII reduced the allowable residue to 0.5 Gm. in 100 Cc., and included the kaolin test for the presence of caramel coloring. In the list of additions and deletions promulgated by the Committee of Revision on May 1, 1907, the caramel test was deleted. It is difficult to understand why the U. S. P. VIII should attempt to preclude the use of the finer types of French brandy by restricting the solid content, and likewise why, after having once recognized the error of the caramel test and deleted it from the U. S. P. VIII, it should be proposed to now reincorporate this test in the U. S. P. IX.

The following monograph with the proposed title is respectfully submitted:

Spiritus Vini Vitis.

BRANDY.

A potable alcoholic liquid obtained by the distillation of the fermented unmodified juice of fresh grapes. Brandy intended for administration as a medicine should have been stored in wood containers for a period of not less than four years before it is used, and should conform to the following characters and tests:

A pale amber-colored liquid, having the odor and taste of diluted alcohol modified by the flavor derived from the grape wine, substances extracted from the wood or naturally formed during the storage, and a slightly acid reaction.

Its specific gravity should not be more than 0.938 nor less than 0.926 at 15.6° C., corresponding, approximately, to an alcoholic strength of 41 to 46 percent by weight or 48 to 54 percent by volume of absolute alcohol (see Appendix, Alcohol Tables, page —).

Shake thoroughly 20 Cc. of brandy, 20 Cc. of distilled water, and 10 Cc. of ether; allow the mixture to stand until separation has taken place. Separate the ether layer and allow it to evaporate spontaneously on a watch crystal; the residue should not have an unpleasant or irritating odor (excess of *fusel oil*).

Evaporate 100 Cc. of brandy in a tared dish on a water-bath and dry the residue at 100° C. to constant weight; it should weigh not more than 1.5 Gm. Treat this residue with 10 Cc. of distilled water and filter; the solution should give a greenish-black coloration upon the addition of a few drops of diluted ferric chloride T. S. (1 in 10).

100 Cc. of brandy diluted with 200 Cc. of distilled water should require for neutralization not more than 15 Cc. of tenth-normal potassium hydroxide V. S., using phenolphthalein as indicator (limit of *free acid*).

A SYNOPSIS OF SOME RECENT EXAMINATIONS OF DISTILLED SPIRITS.

Number	Label and locality	Sp. gr. at 15.6° C.	Alcohol, percent by volume	Color	Color after treating with kaolin	Residue from 100 Cc. in Gm.	Character of residue	Residue soluble	Residue insoluble in Gm.	Aqueous solution of residue with $FeCl_3$	Acidity, 100 Cc. required N/10 KHO in Cc.
1	Neutral spirit from grain, Cincinnati, Ohio	0.8113	96 1	Colorless	....	0.005	....	....	....	....	0.7
2	Grain neutral spirit, Peoria, Ill.	0.8122	95.8	Colorless	....	0.004	....	....	....	....	0.5
3	Grain, neutral spirit, Peoria, Ill.	0.8099	96.5	Colorless	....	0.004	....	....	....	....	0.6
4	Grain, neutral spirit, New York, N. Y.	0.8142	95.4	Colorless	....	0.007	....	....	....	....	0.9
5	Whiskies—Blend A, No. 1 Bourbon, Louisville, Ky.	0.9496	41.5	Amber	Very light amber nearly decolorized	0.126	Glossy and spotted, faint woody odor, caramel taste	Almost completely	Scant	brown, scarcely green	5.5.
6	R. Co., I. H. Brand, Louisville, Ky., 7 years old	0.9270	53.5	Amber	Only slight reduction of color	0.233	Spotted, dry, brown, woody odor and taste	Only partly	Decided	Green-black	12.3
7	R. Co., I. H. Brand, Louisville, Ky., 5 years old	0.9245	55.	Amber	Only slight reduction of color	0.183	Spotted, dry, brown, woody odor and taste	Only partly	Decided	green-black	11.
8	R. Co., I. H. Brand, Louisville, Ky., 3 years old	0.9350	49.5	Amber	Only slight reduction of color	0.155	Spotted, dry, brown, woody odor and taste	Only partly	Decided	Green-black	9.5
9	R. Co., I. H. Brand, Louisville, Ky., 2 years old	0.9320	51.	Light amber	Only slight reduction in color	0.175	Spotted, dry, brown, woody odor and taste	Only partly	Decided	Greenish	10.
10	A. Rye, B. D. Co., Louisville, Ky.	0.9430	45.5	Amber	Reduction decided, about ½	0.343	Glossy, gummy, caramel-like, sweet	Nearly entirely	Scant residue	Greenish-brown	7.6
11	A, Bourbon; B, D. Co., Louisville, Ky.	0.9422	46.	Amber	Reduction decided, about ½	0.325	Glossy, taste caramel-like, sweet	Nearly entirely	Residue scant	Greenish-brown	6.8
12	B, Bourbon; B, D. Co., Louisville, Ky.	0.9419	46.	Amber	Reduction very decided, about ⅔	0.335	Glossy, gummy, caramel-like	Partly	Residue scant	Greenish-brown	4.1
13	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 6 years old	0.9150	59.	Deep amber	Only slight reduction	0.260	Spotted, dry, brown, woody odor and taste	Gm. 0.220	Gm. 0.040	Greenish-black	12.2
14	T. Co., double, distilled pure rye whisky, Pittsburgh, Pa., 5 years old	0.9230	55.5	Amber	Only slight reduction in color	0.190	Spotted, dry, brown, woody odor and taste	0.140	0.050	Greenish-black	10.2
15	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 4 years old	0.9240	55.	Amber	Only slight reduction in color	0.210	Spotted, dry, brown, woody odor and taste	0.146	0.064	Greenish-black	12.
16	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 3 years old	0.9242	55.	Amber	Only slight reduction in color	0.190	Spotted, dry, brown, woody odor and taste	0.133	0.057	Greenish-black	11.7
17	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 2 years old	0.9291	52.5	Amber	Only slight reduction in color	0.135	Spotted, dry, brown, woody odor and taste	0.075	0.060	Greenish-black	9.3
18	T. Co., double-distilled pure rye whisky, Pittsburgh, Pa., 6 months old	0.9340	50.	Amber	Only slight reduction in color	0.105	Spotted, dry, brown, woody odor and taste	0.089	0.016	Greenish-brown	9.6
19	Blended whisky, C. Co., Baltimore, Md.	0.9423	45.5	Dark amber	Reduction very marked	1.700	Glossy, gummy, sweet, fruity	1.640	0.060	Brown, only faintly green	10.6
20	Blended whisky, C. Co., Baltimore, Md.	0.9438	45.	Dark amber	Reduction very marked	1.65	Glossy, syrupy, fruity	1.630	0.020	Brown only faintly green	12.

A SYNOPSIS OF SOME RECENT EXAMINATIONS OF DISTILLED SPIRITS.—*Continued.*

Number	Label and locality	Sp. gr. at 15.6° C.	Alcohol, percent by volume	Color	Color after treating with kaolin	Residue from 100 Cc. in Gm.	Character of residue	Residue soluble in Gm.	Residue insoluble in Gm.	Aqueous solution of residue with $FeCl_3$	Acidity, 100 Cc. required N/10 KHO
21	Eastern rye, New York, 4½ years old	0.9203	57.	Amber	Reduction only slight	0.245	Spotted, dry, brown, woody odor and taste	0.180	0.065	Green-black	16.2
22	Eastern rye, New York, 3⅓ years old	0.9228	56.	Amber	Reduction very slight	0.290	Spotted, dry, brown, woody odor and taste	0.220	0.070	Green	15.6
23	Eastern rye, New York, 2½ years old	0.9294	52.5	Amber	Reduction scarcely noticeable	0.230	Spotted, dry, brown, woody odor and taste	0.175	0.055	Green	15.2
24	Eastern rye, New York, 1½ years old	0.9280	53.	Amber	Reduction scarcely noticeable	0.167	Spotted, dry, brown, woody odor and taste	0.127	0.040	Green	11.3
25	Eastern rye, New York, 6 months old	0.9323	51.	Pale amber	Reduction scarcely noticeable	0.107	Spotted, dry, brown, faintly woody odor and taste	0.082	0.025	Light green	8.
26	H, pure rye, Ohio, 6 years old	0.9114	61.	Amber	Reduction very slight	0.210	Spotted, dry, brown, woody odor and taste	0.145	0.065	Green-black	13.3
27	H, pure rye, Ohio, 5 years old	0.9179	58.	Amber	Reduction very slight	0.202	Spotted, dry, brown, woody odor and taste	0.153	0.049	Green	11.6
28	H, pure rye, Ohio, 4 years old	0.9203	37.	Amber	Reduction not appreciable	0.195	Spotted, dry, brown, woody odor and taste	0.139	0.056	Green	11.2
29	H, pure rye, Ohio, 3 years old	0.9252	54.5	Amber	Reduction not appreciable	0.150	Spotted, dry, brown, woody odor and taste	0.102	0.048	Green	10.2
30	H, pure rye, Ohio, 2 years old	0.9292	52.5	Amber	Reduction not appreciable	0.155	Spotted, dry, brown, woody odor and taste	0.119	0.036	Green	9.9
31	H, pure rye, Ohio, 1 year old	0.9297	52.25	Pale amber	Reduction not appreciable	0.125	Spotted, dry, brown, woody odor and taste	0.083	0.042	Green	10.6
32	Blend, S. Co., Cincinnati, O.	0.9430	45.5	Deep amber	Greatly reduced, approximately ½	0.115	Glossy, brown, odor slightly woody, caramel taste	0.095	0.020	Greenish-brown	4.
33	Blend, S. D. Co., Cincinnati, O.	0.9387	48.	Deep amber	Greatly reduced, approximately ½	0.530	Glossy, only very slightly woody, gummy, sweet, fruity	0.510	0.020	Dirty brown, faintly green	5.1
34	Blend F, New York	0.9424	45.7	Dark amber	Greatly reduced, approximately ½	0.465	Glossy, brown, sweet, fruity and caramel-like	0.440	0.025	Dirty brown, faintly green	7.
35	Blend A, No. 1 Bourbon, Louisville, Ky.	0.9462	43.5	Amber	Greatly reduced, approximately ½	0.270	Glossy, slightly bitter, caramel-like	0.255	0.015	Brown, scarcely any green tint	4.3
36	Malt, New York	0.9459	44.	Very pale amber	Almost colorless	0.034	Almost odorless and tasteless	0.029	0.005	Pale green, scarcely any precipitate	1.8
37	Rye in bulk, bought from wholesale liquor dealer on druggist's order for whisky, Philadelphia	0.9445	44.5	Deep amber	Decided reduction, approximately ½	0.452	Glossy, spicy, fruity, sweet	0.447	0.005	Scarcely any precipitate and only faint trace of green	2.3
38	Rye whisky, 4 years old, supplied by wholesale druggist on a retailer's order, Philadelphia	0.9395	47.7	Amber	Slight reduction	0.208	Brown, part glossy and part spotted	0.158	0.050	Green-black	11.5

A SYNOPSIS OF SOME RECENT EXAMINATIONS OF DISTILLED SPIRITS.—*Continued.*

Number	Label and locality	Sp. gr. at 15.6° C.	Alcohol, percent by volume	Color	Color after treating with kaolin	Residue from 100 Cc. in Gm.	Character of residue	Residue soluble	Residue insoluble in Gm.	Aqueous solution of residue with $FeCl_3$	Acidity, 100 Cc. required N/10 KHO
39	P, blend, supplied by wholesale druggist on order of retailer, Philadelphia	0.9410	46.5	Amber	Greatly reduced at least ½	0.482	Glossy, gummy, hygroscopic, fruity	0.477	0.005	Not green, no distinct change	3.8
40	Philadelphia rye whisky, supplied by a wholesale druggist on order of a retailer	0.9437	45.	Amber	Decided reduction, at least ⅓	0.500	Partly glossy, gummy, faintly woody	0.460	0.040	Greenish-br'n	14.1

USE AND ABUSE OF DRUGS.

W. T. Little, M.D., Canon City, Colo., summarizes his paper on the above subject in *Colorado Medicine* as follows: Pharmacology is a branch of medical science second to none other in importance. It is essential to know disease, its cause and its natural history before we can successfully control it; but its prevention and cure is the ultimate purpose of all our efforts. By physical and chemical means we endeavor to restore to their normal function organs damaged by disease, and only when their functions are destroyed should we cut them away. Drugs are of the greatest value in modifying and restoring function, but they should be used with a precision that can come only from an exact knowledge of their action. The pharmacologic laboratories are gradually weeding out those drugs of uncertain value, as the expectorants, the hypophosphites, viburnum, strychnine, etc.; and, hard as it may be to part with old friends, it is our duty to do so if we are to maintain the highest state of medical efficiency. A knowledge of the physiologic action of a drug is essential to its correct use. We should know that our drugs are both active and pure. We should give drugs only when they are clearly indicated. In judging the worth of a remedy always maintain an attitude of scientific skepticism.

IS TETANUS (LOCKJAW) CAUSED BY VACCINATION?*

BY F. E. STEWART, PH.G., M.D., PHAR.D.

It is important for pharmacists to know that tetanus (lockjaw) is not caused by vaccination against smallpox. It has been my duty to investigate this subject in a number of cases ascribed to impure vaccine virus by the newspapers. In every case I have been brought in contact with not only the physician who did the vaccinating, but also with the pharmacist who sold the vaccine, and I have found such an unfortunate lack of information that I am impressed with the duty of bringing the subject before the pharmacists of the country that they may have accurate information.

Much opposition is being directed against compulsory vaccination laws by the anti-vaccinationists, and all of these cases of tetanus following vaccination are used by them as stock arguments against vaccination as a preventive of smallpox. Hence it is of the greatest importance to the physician, to the pharmacist, and to the public that the possibility of this particular infection should be carefully investigated.

In a recent case, where two children died of tetanus, following vaccination, in a neighboring state, the newspapers were filled with sensational statements in which the disease was ascribed to "impure virus." To make bad matters worse, the newspapers stated that "medical authorities agree that in cases of tetanus resulting from vaccination, impure virus is the cause."

One of the children referred to was vaccinated 26 days before symptoms of tetanus made their appearance. On inspection, after admission to the hospital, it was noticed that this child had several scars and wounds from scratches on the limbs; the other child, who was vaccinated 27 days before the tetanus symptoms occurred, showed a badly-infected sore on the knee. No other cases of tetanus were reported as having occurred from the use of the vaccine. Careful investigation was made to ascertain the disposal of samples of the same lot. About 20,000 packages of this vaccine were issued, and it is safe to assume that between 40 and 60 percent of it was used for vaccination in various parts of the United States, and in no instance was there any sign of tetanus following the vaccination.

Tetanus spores are very common. The soil is contaminated almost everywhere, especially in some parts of the country. "In nature, the tetanus bacillus has been found by Nicolaier and others to occur in the superficial layers of the soil. The earth of cultivated and manured fields seems to harbor this organism with especial frequency, probably because of its presence in the digesta of some of the domestic animals.[1] From the alimentary canal they reach the soil, where the vegetative form probably soon dies, but the spore form is very resistant and capable of living under the most adverse conditions for months or years.

While [2] "The vegetative forms of the tetanus bacillus are not more resistant against heat or chemical agents than the vegetative forms of other microörganisms, tetanus spores, however, will resist dry heat at 80° C. for about one hour,[3] live steam for about five minutes. Protected from sunlight and other deleterious influences, tetanus spores may remain viable and virulent for many years. Henrijean has reported success in producing tetanus with bacilli from a splinter of wood infected eleven years before.

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* This paper and the remarks by Dr. William S. Wadsworth and C. Oscar Beasley, Esq., were presented at a symposium on the subject of vaccination, held on Tuesday evening, November 9, 1915, by the Philadelphia Branch of the American Pharmaceutical Association, at the Temple University School of Pharmacy.

[1] See footnote on next page.

[2] Hiss and Zinsser, A Text-Book of Bacteriology, p. 457.

"The comparative infrequency of tetanus infection is in marked contrast to the wide distribution of the bacilli in nature. Introduced into the animal body as spores, and free from toxin, they may often fail to incite disease, easily falling prey to phagocytosis and other protective agencies before the vegetative forms develop and toxin is formed. The protective importance of phagocytosis was demonstrated by Vaillard and Rouget, who introduced tetanus spores inclosed in paper sacs into the animal body. By the paper capsules the spores were protected from the leucocytes, not from the body fluids. Nevertheless, tetanus developed in the animals. The nature of the wound and the simultaneous presence of other microörganisms seem to be important factors in determining whether or not the tetanus bacilli shall be enabled to proliferate. Deep, lacerated wounds, in which chips of glass, wood splinters, or grains of dirt have become embedded, are particularly favorable for the development of these germs. The injuries of compound fractures and of gunshot wounds are especially liable to supply these conditions, and the presence in such wounds of the common pus cocci or of other more harmless parasites may aid materially in furnishing an environment suitable for the growth of the tetanus bacilli. Apart from its occurrence following trauma, tetanus has been not infrequently observed after childbirth, and isolated cases have been reported in which it has followed diphtheria and ulcerative lesions of the throat.

"A definite period of incubation elapses between the time of infection with tetanus bacilli and the development of the first symptoms. In man this may last from five to seven days in acute cases, to from four to five weeks in chronic ones. Experimental inoculation of guinea-pigs is followed usually in from one to three days by rigidity of the muscles nearest the point of infection. This spastic condition rapidly extends to other parts, and finally leads to death, which occurs within four or five days after infection."[4]

The tetanus bacillus and its spores are so wide-spread in nature that opportunity presents itself for contamination of the vaccinal wound and the virus itself. This fact is well known and its significance thoroughly appreciated by the producers of vaccine virus. Every precaution is, therefore, taken in the preparation of the virus, and physicians should realize the necessity for observing great care in the treatment of the vaccinal wound, to insure the patient from the risk of infection from the soil by protecting the wound against contact with any substance liable to contain tetanus spores. However, in spite of such precautions on the part of the physicians, ignorance and carelessness on the part of parents and their children sometimes defeat these precautionary measures. It is exceedingly difficult to always determine the source of infection in each case of vaccinal tetanus, but investigations indicate that the virus itself is not the vehicle of infection.

The results of extensive investigations of this subject by Dr. John F. Anderson,

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[3] W. F. Elgin, Director of the Mulford Vaccine Laboratories, says: "Later work of Francis, however, puts a higher limit than 80° C. In fact, one of our methods for differentiating tetanus from other bacilli is to heat to 80° C. for one hour to destroy toxins and other bacteria, leaving tetanus spores still viable." (Personal communication.)

[4] Francis, in a bulletin published by the U. S. Bureau of Hygiene (No. 95), gives, as the shortest time, three days, and from that on to nine days, most commonly three to four days.

Director of the Hygienic Laboratories of the United States Public Health Service, are set forth in Public Health Report, vol. xxx, No. 29, July 16, 1915. The evidence is of the most exhaustive and convincing character. Surgeon Edward Francis, of the Division of Pathology and Bacteriology, working under Director Anderson, conducted experiments to determine the possibility of infecting guinea-pigs and monkeys, which are susceptible to both vaccinia and tetanus, by inoculating with a mixture of vaccine and tetanus organisms. All experimental animals failed to develop tetanus, neither did the living tetanus germs establish themselves in the vaccination sores, nor were there any symptoms of poison from tetanus toxin, which would have been the case if the germs had been able to grow in the sores. In other words, as stated by Dr. Anderson, " It is difficult, if not impossible, to produce tetanus in susceptible animals by vaccination with virus containing large numbers of tetanus organisms which have been purposely placed therein."

It is pointed out by Dr. Anderson " that this conclusion is strengthened by the rarity of such cases, only 41 being recorded among over 31,000,000 vaccinated subjects during 1904–1913 inclusive."

This view was further strengthened by the failure of the Bureau of Hygiene to demonstrate tetanus organisms in a large amount of vaccine virus, specifically examined for that purpose.

The production of vaccine virus is conducted by the large propagators under government license, issued by the Bureau of Hygiene. No vaccine is permitted to enter into interstate commerce except under the inspection of the Bureau. The inspectors are always alert and are constantly examining the facilities of the manufacturers and testing their products by purchasing vaccine virus on an open market and examining the same for tetanus spores and other contaminating micro-organisms.

In conducting the work of the Bureau, samples of vaccine virus sufficient for 2,000,000 vaccinations, obtained from the various propagators, have been examined, and in not a single instance were tetanus spores discovered in the vaccine. Dr. Anderson, therefore, further concludes " that, in view of the failure to demonstrate tetanus organisms in the large amount of vaccine virus specifically examined for that purpose, it seems exceedingly improbable that vaccine virus, as sold in the United States, contains organisms."

If the vaccine virus in the United States had been at fault during the time in which the production has been under the observation of the Bureau of Hygiene, many more cases of tetanus should have followed vaccination.

Further, no cases of tetanus following vaccination were reported in the United States Army and Navy during the ten years between 1904 and 1913 among 585,000 persons vaccinated, although the lymph used came from the same stocks as were used for the civil population. This, Dr. Anderson states, " is an argument in favor of the contention that the cases of tetanus following vaccination in the country at large were not due to infection contained in the virus."

The average period from vaccination to onset of symptoms of tetanus in 83 cases of tetanus following vaccination was 20.7 days, while the average mortality of 93 cases was 75.2 percent, this being slightly higher than the mortality of cases of tetanus due to other causes with an incubation of ten days or less.

Therefore, as concluded by Dr. Anderson, " cases of tetanus, occurring 15 or 20 days subsequent to vaccination, do not receive their infection through the vaccine virus. In all probability the infection is received about the tenth day." The cases above referred to were those of children who had been vaccinated 26 days previously, and, therefore, in the light of what has just been stated, it is evident that the infection was not caused by the vaccination, but occurred not less than ten days afterward.

As stated by Dr. Anderson, "the infection with tetanus is received by a contamination of the vaccination wound, such as may occur in the infection or any other surgical wound not properly cared for. No matter how carefully the physician cares for the wound produced by vaccination, infection may occur, because it is impossible to keep the patient under continuous observation. While it is true that it is difficult, if not impossible, to produce tetanus by injecting the tetanus germs into healthy tissues, yet a suppurating wound, owing to the lowered resistance of the tissues, resulting from the growth of pus-producing organisms, is particularly susceptible to infection by tetanus germs derived from the soil or possibly blown in the dust by a passing wagon or automobile."

It should always be remembered that the occurrences of tetanus not following vaccination are far more frequent than post-vaccinal cases. For example, in 1909 the total vaccine virus distributed by the Health Department of Philadelphia, as recorded by Dr. Wadsworth, the Coroner's Physician, was 40,400; the total cases of tetanus investigated by the Health Department during the same year were 25, of those only three were post-vaccinal. In 1910, 65,000 packages were distributed; total cases of tetanus reported, 30 (post-vaccinal, 4). In 1911, 44,183 packages were distributed; total cases of tetanus reported 24 (post-vaccinal, 3). In 1912, total virus distributed by Health Department, 40,844; total cases of tetanus reported 24 (post-vaccinal, 2).

In these four years the city distributed 190,427 "vaccinations," and Dr. Wadsworth estimates that private firms sold at least double this amount, making more than one-half million vaccinations in the city. Tetanus followed in only 13 cases, while there were 90 cases of tetanus having no relation to vaccination. This would certainly seem to demonstrate that tetanus following vaccination can be accounted for in the same way as tetanus following any other wound presenting proper conditions for the reception and development of tetanus spores.

Before the introduction of vaccination, smallpox was the greatest scourge that affected the human race. In 1796, Junker wrote that 400,000 lives were lost yearly by smallpox. In 1803, King Francis William of Prussia, in an edict, stated that 40,000 died annually in Prussia of the disease. From 1761 to 1800, in the city of London, there was an average death rate of 2037 persons yearly from smallpox. From 1700 to 1800 it is estimated that an average of 500,000 persons died yearly from smallpox throughout the world. Before Jenner's discovery it is estimated that one-tenth of all the children born died of smallpox. Since the early part of the nineteenth century, when smallpox—which at first assumed epidemic form in Europe about 1700—had become a veritable scourge, suddenly began to decline coincident with the general adoption of vaccination, and that decline continued for decade after decade until the disease lost its terrors, the great majority of physicians now living have never so much as seen a case. Do we want a return of this terror? Do we want a return of the terrible smallpox epidemics of the Middle Ages? Do we want a return of conditions described by Lord Macaulay, who, writing of the death of Queen Mary of England, in 1694, said of smallpox:

"That disease, over which science has achieved a succession of glorious and beneficent victories, was then the most terrible of all the ministers of death. The havoc of the plague has been far more rapid, but the plague has visited our shores only once or twice within living memory; and the smallpox was always present, filling the churchyards with corpses; tormenting with constant fears all whom it had not yet stricken, leaving on those whose lives it spared the hideous traces of its power, turning the babe into a changeling at which the mother shuddered, and making the eyes and cheeks of the betrothed maiden objects of horror to the lover."

If we do not want a return of this terrible time, let the newspapers, instead of frightening people concerning the "dangers" of vaccination by scare headlines, when an occasional death occurs from tetanus following vaccination, carefully investigate such reports in all cases, and, instead of permitting the public to draw erroneous conclusions from the publication of half-truths, let them caution the public in relation to the care of vaccination wounds to prevent possible infection with tetanus spores.

From the beginning there has been opposition to vaccination, some of which prevails even at the present time. The Anti-vaccination Society was formed in London to combat Jenner in his work. All kinds of arguments were brought forward against vaccination. It was claimed that the physical characteristics of the bovine species were transmitted by the vaccine, and that the persons who submitted to the operation developed horns and hoofs like a cow. Thousands of circulars were distributed, illustrated by a very remarkable picture, entitled "Cow-pox; or, the Wonderful Effects of the New Inoculation." This picture represented vaccinated persons with the heads of cows growing out of their foreheads. Women, otherwise good looking, were represented as having horns and hair of a cow in place of the natural hair. Various portions of the cow grew out of the body in different places.

Dr. Osler's Challenge to the Anti-vaccinationists.—"A great deal of literature has been distributed casting discredit upon the value of vaccination in the prevention of smallpox. I do not see how any one who has gone through epidemics, as I have, or who is familiar with the history of the subject, and who has any capacity left for clear judgment, can doubt its value. Some months ago I was twitted by the editor of the Journal of the Anti-vaccination League for 'a curious silence' on this subject. I would like to issue a Mount Carmel-like challenge to any ten unvaccinated priests of Baal. I will go into the next severe epidemic with ten selected vaccinated persons and ten selected unvaccinated persons. I should prefer to choose the latter—three members of Parliament, three anti-vaccination doctors, if they could be found, and four anti-vaccination propagandists. And I will make this promise, neither to jeer nor to gibe when they catch the disease, but to look after them as brothers, and for the four or five who are certain to die I will try to arrange the funerals with all the pomp and ceremony of an anti-vaccination demonstration."

COMPULSORY VACCINATION LAWS.

We have digressed somewhat from our subject. The question before us for discussion is, "Is Tetanus Caused by Vaccination?" and the foregoing evidence proves overwhelmingly that post-vaccinal tetanus is not caused by impure virus. One of the reasons advocated by the anti-vaccinationists in support of their attempt to have the compulsory vaccination laws repealed is that the virus is impure and the vaccination carries with it various infectious diseases, including tetanus. We have shown that, so far as tetanus is concerned, this claim is unwarranted. The limits of this paper will not permit discussing the other phases of the subject. The intent of the paper is neither to advocate nor discourage compulsory vaccination laws, but to point out that one of the strong arguments against these laws urged by the anti-vaccinationists has no reasonable foundation. There is another phase of our subject which ought to be referred to before closing the paper, and that is—

how to prevent accidents following vaccination—and I can bring this paper to a conclusion in no better way than to impart some of the suggestions that have been made by public health officials in regard to the proper precautions to be observed in conducting this operation.

Study of the cause of post-vaccinal tetanus brings out one very interesting feature, and that is the influence of season in its relation to post-vaccinal tetanus. In 77 cases of tetanus following vaccination, the date of onset was determined, and of this number it was found that 29 persons who had been vaccinated developed tetanus in October, 15 in September, 10 in August, and 8 in November. The other eight months of the year show a total of 15 cases, with none in March or April. Therefore, over 80 percent of these cases occurred in the late summer and three fall months.

Dr. W. F. Elgin, in his paper entitled "Accidents Following Vaccination" (American Journal Public Health, September, 1915), calls attention to the same fact. He notes, by reference to his statistics, that a large proportion of the tetanus cases developed in the fall, while large amounts of virus are also distributed in winter and spring, with a small case rate for tetanus, and he asks, "Does this not indicate that weather conditions, dust, etc., are more favorable to tetanus development in the summer and fall than at other times?" Believing this to be so, he strongly urges that health officers and others responsible for the vaccination of school children should insist on a change in the time when this operation is performed as a routine procedure.

Vaccination is a surgical procedure, and the same care should be exercised in conducting the operation and in the after-care of the wound as employed in relation to any other surgical operation. Therefore, the following rules should be observed:

First.—Rigid cleanliness should be exercised in preparing the patient for vaccination.

Second.—Deep scarification should be avoided; no blood should be drawn. Also the cross-scarification method of vaccination, which is prohibited by law in some European countries, and the employment instead of two needle scratches or the rotary vaccinating chisel are recommended.

Third.—The physician should dress the patient's arm and give careful instructions as to the subsequent care of the vaccination wound.

Fourth.—The vaccination wound should be left alone for a week or ten days, at which time the dressing should be removed and the area around the vaccination cleaned with sterile water. The arm should then be dressed by the physician and the patient instructed to return at intervals for the inspection of the vaccinated area until the scab drops off in the regular way, which occurs from the twenty-third to the twenty-eighth day. It is important to avoid the use of the old-time bunion-plaster-shape shields, attached by irritating adhesive strips. The parents of the child should be provided with proper dressing and instructed how to use the same during the interim.

Fifth.—Only active vaccine should be employed, and the physician should be sure that the virus has been carried in a refrigerator and not exposed to heat, remembering that unless kept at low temperature the vaccine soon becomes inert and will not "take."

Sixth.—Vaccination should preferably be performed in the winter to get the best results, as the vaccine, being a living virus, is easily destroyed by summer temperature. Furthermore, there is less liability to accidents following vaccination in the winter, because the children are less exposed to dust and contaminating bacteria. During cold weather children are not so liable to play in the streets or around stables where they are exposed to tetanus germs, and the vaccinated area receives protection from infection by the clothing.

Remarks by William S. Wadsworth, M.D.

I came to listen and learn, not to talk, but I do not hesitate to take my stand for any good work being done for the public health, and I gladly add my word in this good cause. While my addition to this subject has been very small, being limited to the paper already quoted, on tetanus records of Philadelphia, I am deeply interested in the problems and the subject as a whole.

Dr. Stewart has already given you a very clear and true summary of the conclusions and the facts on which they are based. It is certainly pertinent to the subject, if not altogether pleasant, to consider the opposition.

It is difficult to see how high-grade men can oppose such a movement, but the methods employed by the opposition are not those of high-grade men. These methods lack honesty and honor, and the subject is most unattractive to one who would like to think well of his fellow men.

How can there be two sides to the fight against pestilence? Of course, any crime will be defended by some lawyer, but such proceedings do not raise our enthusiastic approval. I cannot conceive how those who fight in the interests of pestilence can justify their acts. I can understand contending for greater care and improved methods, but not for such nihilistic standards.

To me there is one side—that of the honest and earnest worker for the health of the whole public, who, by using every possible precaution and striving with heartbreaking strain to find new precautions, seeks to make the only known means of fighting this pestilence safe. Perhaps one instance of the methods of crafty and unscrupulous opposition will be in order. While the paper quoted was in the hands of the printer, the opposition had published in an Ohio city a flashy account of cases of tetanus in Philadelphia *occurring in previously healthy persons and wholly due to vaccination,* and giving the number of cases which had resulted from all causes as due to vaccination alone. The number given corresponded with those given by me before the commission, and occurred nowhere else at that time.

This single instance is only a sample of the way truths are perverted for a bad cause. I could give you many. You simply cannot believe a word the opposition utters. Even when it contains the truth there is glaring falsehood.

I congratulate you on hearing Dr. Stewart's paper and thank you for the pleasure of meeting and speaking to you.

Remarks of C. Oscar Beasley, Esq.

As Doctor Wadsworth, in his remarks just finished, characterized the anti-vaccinationists as being " ignorant," as " using underhanded methods of fighting," and as " championing the cause of pestilence," I think that it is only fair that the audience should have a look at an anti-vaccinationist, for inspection purposes, to see whether we have horns or not, and also to hear the arguments that come from such " crazy " people.

Doctor Wadsworth says that there is only one side to the vaccination question. I say in reply to this what John Stuart Mill says: " He who knows only his own side of the case knows little of that."

The great obstacle that stands in the way of every attempt to secure, by intelligent discussion, a settlement of the vaccination question is that the vaccinationists do not meet our objections with scientific data. Mere epithets and assumptions prove nothing.

The vaccination question has its historical and political, as well as its scientific, aspects. It is historical, in the sense that it involves consideration of the experience of communities with smallpox epidemics; and it is political, in that an influential element of the medical profession has caused compulsory vaccination to be put into the statute law, which is enacted by the legislative representatives of the people.

The greatest smallpox epidemic in history, both in the number of cases and in the proportion of deaths, occurred, not in prevaccination times, but in 1872, after more than a half century of well-nigh universal vaccination. It has been conclusively proved that of the more than 44,000 deaths from smallpox that occurred in England and Wales in 1870–71–72, at least 90 percent occurred in vaccinated persons, and the experience of Prussia and other German states, in the same epidemic, was similar. This failure of vaccination to protect the world from the furious smallpox epidemic of 1872 turned the minds of men toward more thorough investigation than had before been undertaken, of the protection that vaccination was alleged to afford to communities against epidemics of smallpox.

Jenner assured the English House of Commons, in his petition for remuneration, presented in 1802, that cow-pox " admits of being inoculated on the human frame with the most perfect ease and safety, and is attended with the singularly beneficial effect of rendering through life the person so inoculated perfectly secure from the infection of the smallpox." This was soon shown by actual experience to be a false premise.

Cow-pox virus contaminated with the virus of smallpox Jenner denounced as spurious.

Now the medical profession has almost entirely discarded cow-pox, and smallpox, only, is generally used for the propagation of vaccine virus. In other words, the members of the medical profession have thrown overboard their vaccination hero, Jenner. They have put Jenner's cow-pox virus into the scrap heap, and have substituted for it the matter of human smallpox.

Another dead-surely-right cult, arm-to-arm vaccination, which was upheld by the members of the medical profession for nearly a century, they finally discovered to be a mistake; and this, also, they have thrown overboard. In fact, they have now thrown overboard nearly everything, nearly every alleged fact, nearly every argument, upon which, in the beginning, they induced the governments of the leading civilized nations of the world to endorse vaccination, and subsequently to force it upon their people by the instrumentality of statutory compulsion.

Arm-to-arm vaccination was found to be a mistake, because it was dangerous to health and life. It was proved that by it many diseases had been transmitted from one arm to another. It was therefore discarded.

Anti-typhoid serum is a sterile substance made of dead typhoid fever germs; so, also, is diphtheria antitoxin a sterile substance. But vaccine virus is not sterile. It is decaying living matter derived from suppurating sores on diseased beasts. The introduction of such diseased matter into the human circulation is denounced by true biologists, except when vaccination against smallpox is concerned. Why the introduction of diseased living matter is always dangerous, except when vaccination against smallpox is concerned, is as yet unexplained.

Something has been said of the safety of which the public can rest assured because of laboratory inspection, not only by the vaccine manufacturer, but also by representatives of the United States Public Health and Marine-Hospital Service. When we recall, however, that for five or six years several vaccine farms in this country propagated vaccine virus contaminated with the foot-and-mouth disease of cattle, and that this contamination escaped discovery during that time, causing hundreds of thousands of diseased vaccine points to be used for the vaccination of children, we can gather some idea of what the so-called laboratory inspection amounts to from the standpoint of public safety.

Tetanus germs exist in soil and in hay, and in the alimentary canal, the hair, and the manure of the calf. We can easily realize, therefore, that the very origin of vaccine virus is in an environment of tetanus. And when we recognize, further, that tetanus in the form of spores is apt to elude discovery, and, further, that tetanus spores require for their development only just such a favorable culture medium as the vaccination sore furnishes, we may conclude, by reasoning from analogy, that these facts are in favor of the theory that the germs of tetanus implanted in the vaccination sore are derived from the vaccine matter rather than of the theory that they are acquired from extraneous infection.

It has been asserted here to-night that Doctor Anderson's tests have shown that when tetanus germs were mixed with vaccine matter for the purpose of experimentally determining whether such matter could produce tetanus, this matter failed to produce tetanus in guinea-pigs inoculated with it. If this is so, why does it happen that these same germs cause tetanus when they are directly introduced into the vaccination wound, from outside infection, although they do not cause tetanus when they are directly introduced into the vaccination wound in the experimental inoculation of guinea-pigs?

The spores of tetanus cannot grow into adult tetanus germs and produce their specific toxin except in the absence of oxygen, and this is aided by the presence, also, of pyogenic organisms. So long as the vaccination sore is open and discharging its pus outwardly there is little likelihood of the tetanus spores developing, but when, after the scab begins to form, the air is excluded, and the affected tissues are deprived of oxygen, the spores develop in the suitable culture medium provided by the vaccination sore and produce their appropriate toxin, and the disease tetanus results. These conditions and the time required for the tetanus spores to develop into full-grown tetanus organisms account for the prolonged incubation period that usually characterizes cases of vaccinal tetanus. Indeed, Dr. Joseph McFarland, in his paper on "Tetanus and Vaccination," read at the Second Annual Meeting of the American Association of Pathologists and Bacteriologists on March 28, 1902, in speaking of severe local lesions following vaccination, says: "Lastly, and I think truly, it may mean that it is only when such local lesions occur that the implanted tetanus bacilli can find conditions suitable for their development." And Doctor McFarland adds, as one of the conclusions that he thinks seem justifiable from the facts stated in his paper: "The tetanus organisms may be present in the virus in small numbers, being derived from the manure and hay."

Dr. Robert N. Willson, of Philadelphia, while making bacteriological examinations of the contents of glycerinated vaccine points, found pus-organisms, the streptococcus, the staphylococcus, and the pneumococcus. Doctor Willson says that glycerin "would tend to accelerate rather than to retard the action of the tetanus process." Doctor Willson inoculated a white mouse with a culture of vaccine virus, with the result that one minute later the mouse died in convulsion. This culture was derived from a glycerinated point purchased in the open market and ready for use.

Thus it has been shown that vaccine virus itself, and the vaccination sore, furnish the best possible media for the development of the tetanus spores into the adult germs of tetanus, resulting in the disease itself. And in the face of these facts it is idle to declare that it is proved that cases of tetanus following vaccination must necessarily be due to some outside infection. This is especially so as Bolton states, in " Williams's Manual of Bacteriology," that " the toxic substance of tetanus appears not to be a ptomaine, as was at first supposed," and that " its exact nature is not determined." As the very nature of the toxic substance of tetanus is unknown, any positive statements, such as have been made here to-night, about the virus used in vaccinating not being the infecting agent, are manifestly unwarranted by the facts.

What the anti-vaccinationists want is to receive satisfactory answers to all these questions, such as will clear up all the doubtful points concerning vaccination, and not mere dogmatism and mere assertion. Present experience proves that smallpox can be kept out of a community or kept under control by quarantine and isolation and other sanitary measures without vaccination. In England and Wales vaccinations have decreased in number nearly 50 percent in recent years, and smallpox has been kept down to the lowest point it has reached there during the last four hundred years. The medical profession will have to deal more frankly with the public in this matter if it expects the confidence of the public. Utah has expressly prohibited compulsory vaccination, and various other states of the Union have done away with the general enforcement of vaccination; and Great Britain is relieved by parents being simply required to make a written declaration, and the child is left unvaccinated, and no increase of smallpox has followed among its great unvaccinated population.

The vaccine virus now most generally used is human smallpox matter modified by passage through lower animals and by mixture with glycerin. In the original preparation of seed virus the most satisfactory material was found to be pulp taken from the vesicles on the corpses of persons that had died of smallpox. This material was inoculated into the monkey, on whose body it makes a sore and sometimes an eruption. After passage through several monkeys, the resulting decayed and diseased matter from the sores of the monkey is in turn inoculated into the calf, when another kind of sore is produced, resulting from the diseased smallpox matter, plus the diseased tissues of the monkey; and then the process is completed by the addition of impurities derived from cultivation of this diseased matter in the skin of series of calves. Such an origin for any substance to be introduced into the human circulation is abhorrent to both reason and science.

Continued inoculation of the seed virus, from calf to calf, in time produces a still further modified virus, which loses the power to make a satisfactory sore. The vaccine manufacturer must then get something to start with again that is sufficiently impure to last for a while. Finding themselves in this predicament some years ago, propagators of vaccine virus sent to Japan and procured some seed vaccine virus from that country. What it was, was unknown. It seemed, however, to be of sufficient impurity and disease-producing character to start a new strain of vaccine virus in the United States. For five or six years this virus was sent out, and then it was discovered that in spite of the Federal inspection this seed virus was matter either derived from or contaminated with foot-and-mouth disease. Meanwhile, many hundreds of thousands of children had been inoculated with the vile stuff, and what diseases it left in its train is not known.

COMMENT.

Some of the foregoing statements will doubtless be challenged by the medical profession generally. According to Edwardes,[5] the epidemic of smallpox in Europe in 1870–5, referred to by Mr. Beasley as occurring in 1872, "after more than a half century of well-nigh universal vaccination," really occurred at a period in England when compulsory vaccination was only just beginning. Comparison of the death-rate during this pandemic of smallpox between countries where compulsory vaccination existed and those without compulsory vaccination demonstrated so clearly the benefit of compulsory vaccination laws that it acted as a touchstone in Europe and greatly stimulated the passage of such laws. The vaccination laws throughout the world were made much more stringent from this time. Vaccination was already compulsory in the German Army, but Emperor William, as a result of his observation in regard to this epidemic, issued an order making vaccination compulsory in civil life, and the result has been that smallpox epidemics in Germany have been unknown since that time. According to Edwardes, the death-rate per million population during the years 1871 and 1872 was as follows:

1871.

With Compulsory Vaccination Laws.—England, 1012; Scotland, 428; Bavaria, 1045; Sweden, 78.

Without Compulsory Vaccination Laws.—Prussia, 2432; Austria, 392; Belgium, 4168; Netherlands, 4355.

1872.

With Compulsory Vaccination Laws.—England, 821; Scotland, 718; Bavaria, 611; Sweden, 81.

Without Compulsory Vaccination Laws.—Prussia, 2624; Austria, 1899; Belgium, 1560; Netherlands, 1021.

It was not until 1873 that Austria was influenced by the epidemic to any great extent. During that year the death-rate in that country was 3147.

For further statistics see Report of The Pennsylvania State Vaccination Commission, March, 1913. Henry C. Lippincott, Secretary.

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[5] "Concise History of Smallpox and Vaccination in Europe," by Edward J. Edwardes, M.D., member of the Royal College of Physicians, London.

ANTITOXIN IN BLOOD OF TETANUS CONVALESCENTS.

Löwy found no evidence of an antitoxin in the serum from 4 patients with tetanus (drawn before antitetanus serum had been injected), nor in 5 normal serums, but the tests were positive in the serum from 10 among 15 convalescents. Excluding the 5 whose serum reacted positively to horse precipitinogen, this leaves 5 with an unmistakable antitoxin content in their serum, capable of neutralizing the dose of toxin fatal for the mouse. This antitoxin does not last long; by the thirty-seventh day it failed to neutralize the toxin effectually and the mouse died. No connection between the antibody production and the course of the tetanus or location of the wound could be detected.—*Wiener Klinische Wochenschrift,* November 25, 1915, through *J. A. M. A.*

THE STEVENS-AYRES BILL.*

BY J. LEYDEN WHITE.

Over thirty years ago, when I was a boy in a wholesale drug house in Chicago, word came to us one day that a small retail druggist on Twenty-second street was selling a one-dollar patent medicine for ninety-four cents. This, within my knowledge, was the first cut-rating in Chicago, and about gives the time when the fight against the cutter commenced. This old association, the American Pharmaceutical, was the only national organization of pharmacists at that time, but, being considered as exclusively professional, it did not take up the fight against the cutter as an organization, although its members were from the first active in individual and group work. Later the National Association of Retail Druggists was formed for the single purpose of antagonizing the methods, such as are now known as unfair competition, and among the charter members of the National Association of Retail Druggists were some of the most prominent members of the American Pharmaceutical Association. It is not my intention to go into the history here, so I will now take up the matter of the bill now before Congress, which represents the state of work at the present time.

Each period has its new phrases that busy the tongue. To-day there are few in such common use and expressing so much of vital importance as "unfair competition." Under the humbuggery larded by the words "bargain," "cheap," "cut rate," "below cost," and so forth, greed is doing its merciless work to crush mercantile individuality, and, even more, destroying the small towns, giving growth to city slums and forging the fetters of a great distributing monopoly upon the people of the nation, of the world.

Of all the methods of unfair competition, price baiting with standard merchandise is the most demoralizing. Next to this cutting of townsman against townsman, brother against brother, comes (and it is a very close second) the monopolistic process of the mail-order house.

If an inventor, an originator, or the manufacturer who has purchased the right to the invention or novelty may not lawfully maintain the selling price of the goods all along their path of exchange until they reach the consumer, then the very corner-stone of American success, the foundation of its greatness, originality, genius, has been destroyed. Soon the hour of labor of the watchmaker will receive no greater reward than the hour of toil of the man with the hoe.

The maintenance of price is lawfully upheld in public service by the interstate commerce and many public utilities commissions. It is upheld by the government itself in all its own transactions, from the sale of penny postage stamps to the salaries of cabinet officers. It is upheld with more vigor, more contention in the union wages of those who produce merchandise than in any class of transactions. As a matter of fact, the Stevens Bill seeks to give to the sale of merchandise nothing more than is now practically given to all the rest of the country's business. Even in merchandising, this justice, this right of the maintenance of sale and resale prices was acknowledged to be legal up to a few years ago.

This being no legal document, I shall not go into a *résumé* of the Miles, Sanatogen, Macy, and other cases which, if they did not exactly legalize unfair competition, certainly did much to cripple fair trade. What we face is the fact that, as at present interpreted, the laws of the land forbid a living profit preservation, or, as latterly and generally described, price standardization. It therefore follows that for the restoration of fair trade of such nature as will give the advantages of honest merchandising to the American consuming public it will be necessary to have Congress enact a law. It is absolutely necessary for the protection of consumers, producers, and all handling and forwarding elements that the Stevens-Ayres Bill be passed.

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* An address delivered before the City of Washington Branch of the American Pharmaceutical Association on December 29, 1915.

Peculiarly, happily, the Stevens-Ayres Bill holds provisions that directly refute most of the criticisms made against it. Thus some may say that in allowing a maintenance of price it proposes to foster monopoly, whereas the second paragraph of the bill says of the person seeking protection under it:

> Such vendor shall not have any monopoly or control of the market for articles belonging to the same general class of merchandise as such article or articles of commerce as shall be covered by such contract of sale; nor shall such vendor be a party to any agreement, combination, or understanding with any competitor in the production, manufacture, or sale of any merchandise in the same general class in regard to the price at which the same shall be sold either to dealers at wholesale or retail or to the public.

That there may be no discrimination in prices at any stage of the passage of the article in exchange, the bill provides that all prices to wholesaler, retailer, and to consumer shall be filed in schedule form with the proper bureau of government, and that each separate article so protected shall have affixed to it a notice showing the price at retail, the name and address of the maker, and the trademark or other brand of the article. It should also be noted by this reference to brand that objections often made to the bill have no standing at all when such objections refer to commodities, for the law sought under this bill bears upon nothing but trade-marked or otherwise lawfully branded goods.

The thoughtless and yet common objection to the bill that it is unconstitutional is refuted by the fact that within it there is nothing mandatory. It is simply permissive. It does not compel any manufacturer to contract under it for the maintenance of a resale price, but it does permit him to if he so choose.

It is also sometimes claimed that dealers would become " stuck " with " dead," damaged, or otherwise unsalable stock, because of the prohibition against cutting. However, Section D of the bill explicitly provides for just such contingencies.

In declaring the perfect justice and economic harmony of maintaining a resale price under such restrictions as this bill provides, we contend that the mark of genius, of originality, of energy, of perseverance as is evidenced by the brand, does, in the vast majority of cases, follow into the goods. That is to say, that no price restriction accorded to an article having a mark of identity will be of any lasting benefit to it unless the article is meritorious within itself. Such subtle frauds as have sometimes passed public scrutiny only can or should be reached by the Pure Food and Drugs Act and similar laws. Indeed, the Stevens-Ayres law should be a powerful factor in elevating and purifying merchandise, for in stimulating the unobstructed sale of goods of proved merit it would lessen the market for worthless or harmful imitations. Here again is shown the antimonopolistic character of the bill, for there is nothing in this world so independent as thought, the seed of genius, the flower of individuality, and so, by preserving a market for goods of distinction, the field of fair competition will be maintained, because there will always be the coming of things new.

Under fair conditions the little retailer can give just as good service and just as low average prices as the big fellow. This seems like an extreme statement, but it is true now, and, if you will pardon the play of language, growing truer. Exhaustive investigations have proved that the overhead, the gross selling charges per dollar of business done are heavier in the big cut-rate stores and mail-order houses than in other businesses. That these charges have become excessive has been evidenced by combined efforts to lessen, even do away with, such things as writing- and reading-rooms, varied forms of amusement, and even going so far as to use coöperative unsigned advertisements asking the public to cease buying goods on approval, making exchanges, and asking delivery of small parcels.

Now you may say that if this is so the independent retailer, and conjointly wholesaler and manufacturer, does not need protection from the varied sorts of cutters. The independent merchandiser or manufacturer does not need protection in a fair field, and he does not ask it. He is simply asking the restoration of a fair field. The size of the individual business cuts no figure here. This is a warfare of truth against falsehood with the two-edged sword of the law apparently placed in the hands of falsehood. The Stevens-Ayres Bill simply seeks to deprive falsehood of this weapon and restore to us, to give to all, the simple, the fundamental American right of contract, even now denied in no channel of commerce, law, or ethics, except in the sale of merchandise.

That the great cut-rate establishments must make a larger gross profit on sales than the small dealer is now commonly acknowledged, and therefore, in order to compete with him, they must resort to unfair competition. They may cut the price below their actual cost on a line of well-known trade-marked goods in one department for a certain time, and make up the loss many times by selling unbranded, unknown, oftentimes unworthy goods in other departments at extortionate prices. Thus the small dealer whose whole business is in one line, such as drugs, groceries, or hardware, suffers, is misrepresented, by those who choose his only line as one of their many lines for the false and misleading methods of price-cutting.

The passage of the Stevens Bill would not in the least lessen true competition. Rather would it increase it, for it would advance competition to the basis of business ethics all intelligent people are advocating. It would bring the competition of qualities, quantities, convenience, salesmanship, and generally progressive methods. Nor would the Stevens law even lessen the competition in price-making. It would increase that also, for it would bring conditions that would stimulate manufacturers to vie with each other in efforts to present the largest quantities of the best qualities at the lowest standardized prices.

If it is unfair and un-American to pay labor less than a fair wage for producing merchandise, there can be no worse phase of such general unfairness than to necessitate the scab wage and the sweat-shop product in order to secure goods to meet the unfair competition of cut prices. And it is a notorious fact that the great mail-order houses and lower classes of department stores are enormous buyers of the unbranded goods made by convicts, children, women, and underpaid labor in general. If it is against our national standard of fair play to underpay any man, woman, or child for making a thing, then it must be just as much of a national degradation to underpay, to crush the weak, to destroy individualism by destroying profits and forcing the independent retailers out of business and making them, their children, oftentimes even their wives, become the hirelings of the monopolistic cut-raters.

It is strange that the masses of America cannot see; it is lamentably inexplicable that American labor cannot see, or at least does not acknowledge that everything which has to do with merchandise, from the gathering of the raw materials to the placing of the finished product in the hands of the consumer, is included within production. Accepting as an economic fact the claim that decreasing cost of production increases consumption and thus benefits the race, we must at the same time declare that the decrease in cost of production must be general to be beneficial, for if the race is injured by degradation of labor through decrease of the wages of manual workers, it must be fully as greatly injured by the lowering of the living standards of those whose part in production is the retailing thereof.

The most serious criticism that can be brought against organized labor; one that questions its intelligence and brings doubt of its sincerity, is that it demands standardization of prices in everything and every person connected with merchandise, from the farm, the mine, the forest to the retailing counter itself; even organizing and demanding a standard price, a union wage for retail clerks, and there at the counter immediately coming to a right-about face, and by its countenance, by its practices, even by its preachments, commence an inevitable tearing down of all these wage standards it has set by not only refusing its support to the effort consistently to complete the chain with the standardization of prices, but, on the other hand, giving its vigorous and outspoken support to predatory rate-cutters, and going further by upholding the trading-stamp coupon and other insidious something-for-nothing schemes by which the people are decoyed and fleeced.

Up to a few generations ago *caveat emptor* applied to all the merchandising of the world. It was assumed that the only reputation any merchant could have was a bad reputation, and so it was that the buyer was universally warned to beware. He was not only made to take the responsibility in a play of wits, but he was expected to have the needed knowledge and use unlimited time to protect himself in every deal. After a while it probably happened that one miller who ground his grains well might have used a peculiar knot in fastening the mouth of the sack. So the knot spoke the name of the miller and became the brand for his meal. It was his trade-mark, and the sight of it, its acceptance as a guarantee for quality and measure, saved the buyer both the mental labor and the time of haggling. With such a standard for quality and measure the standard price automatically came. Thus originated what has undoubtedly been a blessing to the world at large and to America in particular—the package system of merchandising.

Now the predatory cutter does not want to restore all the conditions of the age of barter, but he does seek the opportunity to dispose of inferior goods at unreasonable profit. To accomplish this he adopts two methods, and both dishonest, both appealing to human greed. In the first he advertises standard brands at below cost, and then at the same time turns trade from them while acknowledging their merit by offering a profitable substitute which he says is "just as good." The second process is to sell the branded articles freely at the advertised cut price, perhaps actually taking a direct loss on every sale, but at the same time, by advertising and in every other way, bring other, unknown, unbranded, inferior, and overpriced goods before the purchaser, and thus, by possibly selling 50 cents' worth at a loss of 5 percent, induce the sale of $5 worth at a profit of 30 percent.

What is the result upon the people of the nation as a whole?

Congressman Kelly, in his speech in the House of Representatives, said:

> It means making a nation of deceitful bargainers, putting a premium on cheating practices, and putting a handicap on the honest dealer, while injuring the buyer from every angle. It forces the lowering of qualities in all articles, and the substitution of articles driven from the market. The retailer must make a profit to stay in business; if he cannot make it on some articles, he must increase his profit on others.

We may add that, as it is fundamentally true that honest advertising decreases the cost of merchandising because it saves more in the value of time to all concerned in the sale than the cost of the advertising itself, or, to express it differently, as advertising saves more than its own cost in the decrease in selling cost that it effects, therefore any return to past methods, to the use of time for haggling and shopping, to the time consumption, humbuggery, and fraud of barter must advance the general cost of goods, and that this has actually been the effect is proved by the fact that, while cut prices and "bargains" were never so common in America as they are now, the cost of living was never so high.

While we commonly hear of the injury to small towns by the mail-order cutters and the consequent demoralization of real estate values, few realize how much cut-rating and concentration of business in the hands of the few have to do with the disturbance of fiscal conditions in the cities.

At the hearing on the Stevens Bill before the Interstate Commerce Committee of the House of Representatives, Miss Laura A. Cauble, a social worker of New York, said, among other things:

> I investigated 526 small stores in one year, and in that time price-cutting in the larger establishments either forced the sale or the failure of 116 of these small stores.

Believing that more may be accomplished through discussion to-night than by a long talk from me, I shall briefly state what has been done to make a law of the Stevens Bill, and what the prospects are for its enactment.

The rebellion against unfair competition through price-cutting was commenced by retail druggists about twenty-five years ago. For a number of years they worked practically alone, and accomplished little more than agitation through expressions of personal opinion. Later their organizations took up the work and carried it on until it became a national issue. Their first rebuff came when through actions in courts, brought by opponents, they found, to their amazement, that not only were they forbidden to enter into any common agreements for the maintenance of retail prices, but even the right of contract between manufacturer and retailer for the protection of such a price was denied.

After the first federal court decisions of an adverse nature were handed down there was for some time longer a continuance of effort to find a way to maintain prices without violation of existing laws. While it may be said that such effort is not yet entirely abandoned; while such decisions as those in the Cream of Wheat, Victor Talking Machine Company, and others are favorable, and in certain contingencies effective, it has been for some time commonly acknowledged that a general and thoroughly fair system of price standardization demands congressional legislation, the passage of a law explicitly sanctioning the right of voluntary contract between producer and both wholesale and retail distributers.

An appreciation of this necessity brought together a number of the most prominent retailers, manufacturers, lawyers, wholesalers, professors of political economy, and others in the land. They, led by Louis D. Brandeis, the famous lawyer, framed the Stevens, now the Stevens-Ayres Bill. They at the same time organized under the title of the American Fair Trade League.

The bill was introduced in the House of Representatives by Congressman Raymond B. Stevens, of New Hampshire, on February 12, 1914. At the time of its introduction few members of Congress had given it any thought at all, but, before the Sixty-third Congress had adjourned, the Stevens Bill had become familiar to the great majority of the members of both House and Senate; it had figured largely in the hearings before both the Interstate Commerce and Judiciary Committees of the House when they were framing the Federal Trade Commission Bill and the Clayton Bill, and it has been said that the agitation for the Stevens Bill was largely responsible for the insertion of the unfair competition clause in the Federal Trade Commission Act. Aside from this, the Interstate Commerce Committee of the House held a hearing on the Stevens Bill itself before adjournment, at which Louis D. Brandeis was the chief witness.

When the Sixty-third Congress ended by limitation on March 4, 1914, about one-third of the members of the House and a like number of Senators had pledged themselves to its support.

Naturally, among those who failed to return to the following Congress for various reasons were a number of those who had been pledged to the bill. But, despite this, the work for the bill, especially by retailers, continued so persistently through the long summer that when the Sixty-fourth Congress assembled on December 6 there were pledged to support the bill 165 members of the House of Representatives out of a total of 435. This does not include the many who may properly be classed as favorable, but only such as are pledged to support the bill in letters over their signatures. To this number fifteen have been added since Congress reconvened. While the efforts to secure the pledges of Senators have not thus far been very great, fully as large a percentage of the Senate is pledged, and some prominent Senators have given the most outspoken support that the bill has received from any officials. It is significant that the average of pledges from both parties is so nearly even as to prove the bill to be absolutely nonpartisan. Also, while we feel that the problem of unfair competition will have prominent and fair attention by all administrations to come, it is only fair to state that no administration has ever given the matter such clear thought, never given the little fellow such a square deal, as has the one presided over by President Woodrow Wilson.

Of course, when the Sixty-third Congress expired by limitation all bills died with it, so when the present Congress convened there was, technically at least, no Stevens Bill. However, it was reintroduced on December 14, 1915, by Representative William A. Ayres, of Kansas, and it could not have appeared in the present Congress with a better sponsor behind it. Mr. Ayres acted purely voluntarily, stating that he introduced it merely " because it is a good bill and should be passed." As proof of the breadth of the man who now fathers it it should be said that he still refers to it as the Stevens Bill. But, though he thus acknowledges the importance of retaining the name by which it is so well known, many are justly referring to it as the Stevens-Ayres Bill.

Mr. Ayres is a young and mentally and physically vigorous man. He comes from an economically pivotal state, as Kansas suffers much from the mail-order affliction; he represents one of the most progressive constituencies in the nation, his home being in Wichita; he is personally close to and in hearty sympathy with the retailers of his country, and the fair trade of the nation is to be congratulated upon having so clean and valiant a champion for its cause.

While fully appreciating that Congress has before it problems graver than any since the days of our Civil War; while earth itself seems to be like unto a great mine, ready for a universal economic explosion, we are convinced that the Stevens-Ayres Bill will be prominently before Congress from the day it returns, January 4. Finally, we believe that it will pass both Houses of Congress, be signed by the President, and become the law of the land before Congress adjourns by limitation, March 4, 1917.

ADVERTISING THE RETAIL DRUG BUSINESS.*

BY J. THOMAS LYONS.

Before we can come to any conclusion regarding advertising we must first come to some understanding as to what we mean by the word "advertising."

You know, I am often told, especially by manufacturers; they will say: "Lyons, we have been in business for several years. We have gone ahead every year and made money all the time, but we have never advertised in any way." I generally reply:

"My good fellow, it doesn't matter how long you have been in business, you have been advertising from the very first day that you opened your door. Every package of goods that goes out of your shipping department is an advertisement for you; every package that leaves your store is an advertisement for you; the clothes you wear; the things you say; the manner in which you treat your fellow-men; the manner in which you walk down the street are all advertisements in the truest sense of the word.

"Advertising does not necessarily mean bill boards, street cars, newspapers, blank walls, circulars, programs, letters, or any one specific thing, but advertising means anything that attracts the attention of one person or of a million people to your business or to you personally as the proprietor of that business, and if the retail druggist could only realize that almost every waking hour he is advertising or *mis*-advertising his business, he would pay some attention to the importance of correct advertising.

"If an efficient man were to be called by a neighborhood druggist and told to do what he could to increase the profits of the business, the first step, no doubt, would be to see if three or four dollars in white paint would not be a good advertisement in the druggist's window. If there was anything about the exterior of the building that might create the impression in the mind of the passer-by that carelessness and slip-shod methods prevailed within, that condition would have to be corrected.

"The interior of your store often has an unconscious influence, either favorable or unfavorable, on the prospective customer, and you cannot get correct store atmosphere unless the things therein are right.

"The average neighborhood druggist cannot advertise in newspapers profitably because he pays for the total circulation of the paper, and can hardly cash in on more than 5 percent of the circulation. Many druggists have tried to build up a telephone business, but this has often proved disastrous, because the cost of delivery takes the profit from the sale.

"If I were a neighborhood druggist I would do intensive advertising in my own neighborhood. I think it might be good business for a druggist to buy an invalid's chair to be loaned out to convalescent customers and charged up to advertising. The good-will of a family could be obtained through this method at a very low cost.

"At this time of the year it might be good business for a druggist to have a mail box in his store whereby the younger children of the neighborhood could mail their letters to Santa Claus. This would not only bring the children into the store, in most cases accompanied by one of their parents, but it would give you an opportunity to obtain a splendid mailing list of names and addresses for children which could be used to advantage every month.

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* Read before a joint meeting of the Baltimore Branch American Pharmaceutical Association and Baltimore Retail Druggists' Association, December 13, 1915.

"I would promote children's contests, outlined pictures to be filled in with ordinary school crayons, the best and neatest design to receive a box of candy each week or every month, and I would get the candy manufacturer to donate the candy, because in return for it I would give him an advertisement in my window.

"I would concentrate on the doctors. I would try to find out when a doctor had a birthday, and every year I would send him a birthday card or any little thing to get his good-will and all the time I would realize the value of advertising.

"I have seen many a druggist who could have spent 10 cents with a bootblack and charged it up to profitable advertising. I have seen many a druggist who could have spent 50 cents with the manicurist or 25 cents with a barber and charged it up to good advertising.

"Sometimes I wonder, is it because the druggist, as a rule, is better educated than men in other retail lines that he apparently is not the same efficient business man? The average neighborhood druggist will tell you that he is overworked—that the public imposes on him—that they come in to buy stamps and postal cards, and yet a retailer in any other line will tell you that all he wants is to get the people into his store and he will take a chance on selling them, and in most cases he does.

"Have you ever considered that when you open a new store you do not create any new business? As a rule, you depend on your success to switch business from a competitor to you.

"Within the last ten years prescription business in the United States has fallen off about 40 percent, due to a number of things. Here in Greater Baltimore we have 480 drug stores serving about 750,000 people, which, at a most conservative estimate, allows one drug store for every 400 families in the city of Baltimore and suburbs.

"Competition has been very keen here, with the result that everybody has been cutting prices all over the town, the greatest cutting work being done in the shopping district. Cutting prices is all right when you are the only cutter, but when everybody cuts down no one has any advantage, and the disadvantage is that most every one does business at a loss.

"Cutting prices in the drug line does not increase consumption. If I buy two tubes of shaving cream, say, for the price of one tube, I cannot possibly use more cream, even though it costs me less money, and you have stocked me up with cream at little or no profit, when it would be just as easy for you to have gotten a sufficient profit from the sale.

"The result of all this cutting in Baltimore, as I see it as an outsider, has been to cause more or less business demoralization, because you have clogged up the outlets for your business, just the same as if you would stop the circulation of your blood your body would decay, and all the cutting in the world will not increase consumption of goods, and no business can go ahead which does not at least stimulate a greater use of the article itself.

"The druggist is a good fellow; the druggist has been imposed on; the druggist too often holds the bag for the manufacturer while the latter gambles in his territory. If I were a druggist I wouldn't put in any line of new goods unless there was a legitimate reason for it.

"If I were selling, say chewing gum, I can't see why I should put in another line of chewing gum unless I would make a better profit for the same quality gum than the lines already on sale in my store. The more money I put into chewing gum, into cigars, or into any other special department, the harder it is for me to turn over that investment, and my success depends on turn-overs.

"If I were a druggist I wouldn't have anything to do with a manufacturer who puts in his advertising, 'Beware of substitutes.' The manufacturer who tells the public that the druggist substitutes and then expects to get the coöperation of the druggist is certainly as foolish as the druggist who gives it to him.

"The druggist is not necessarily an order taker. He is a business man. He has as much right to sell the public the thing he wishes to sell the public as the manufacturer has to sell the various retailers their own special lines, and if I were a retailer, I would pay especial attention to those manufacturers who were advertising me as a substituter.

"Then, too, a manufacturer desires to put a new chemical on the market. Instead of seeing the druggist he sees the doctor, gets the doctor to write a prescription for the chemical. The prescription is brought to your store, you are going to get 45 cents or 50 cents to fill the prescription, and then in order to fill the prescription you must go to a wholesale house and pay 75 cents or $1 for a bottle of this new chemical. Nearly all of you have such bottles in your store from which you have filled only one prescription, and you did it at a loss. Before I would be willing to lose money on one prescription, I would call up the doctor and tell him the condition and ask him if I bought a bottle of this medicine to accommodate his prescription, could I depend on him to send a sufficient amount of prescriptions to use it all.

"In fact, success with me is not psychology or sociology so much as a knowledge of salesmanship and being convinced of the fact that I am responsible for my own condition. Once I get the confidence of my trade, I can do anything I want with them until I abuse that confidence, and I would do everything possible at all times to merit their confidence.

"The druggist is an educated man, as I have said before, and the future outcome of his store and of his city depends on him individually and depends on him collectively. If you men will get together here in Baltimore and do what you can to bring about a better condition in the drug business generally, you will all profit, and in the years which are to come it will be indeed pleasant to realize that you built on the granite of character instead of the quicksands of a clever selfishness."

We are, all of us, whether young or old, famous or obscure, people of influence. We can not live a day without affecting the world somewhat for good or ill, whether we will or no. We are all a part of life's forces, whether we know it or not. Be as humble as you like, you are still a person of influence, if not by your own choosing, then often by God's decree. It may be only a smile or a simple kindness that you have given to a little child, but it starts agencies you little dream of; or it may be some selfishness or lack of honor, some weakness in you that sets in motion a long train of hurtful and sad influences or circumstances. For all life is connected, and whether you wish it or not your life affects other lives.—Anna B. McCall.

REPORT OF THE COMMITTEE ON UNOFFICIAL STANDARDS

The following portion of the report of the Committee on Unofficial Standards relates to certain crude drugs and chemicals suggested for inclusion in the next revision of the National Formulary, and by order of the Council is published in the Journal in order to afford opportunity for discussion before the standards proposed are finally adopted.

Manufacturers, importers, analysts, and others interested in any of the proposed standards, are requested to send their criticisms and comments to the chairman of the committee, George M. Beringer, 501 Federal Street, Camden, N. J.

ÆTHER ACETICUS

Acetic Ether   Ethyl Acetate

A liquid containing not less than 96 percent by volume of Ethyl Acetate ($C_4H_8O_2$ or $CH_3CO\,.\,OC_2H_5 = 88.06$), the remainder consisting of alcohol and a little water. Keep it in well-stoppered bottles, in a cool and dark place, remote from lights or fire.

Acetic Ether is a transparent, colorless liquid, of a fragrant and refreshing, slightly acetous odor, and a peculiar acetous and burning taste.

Specific gravity: 0.883 to 0.895 at 25° C.

One mil of Acetic Ether is soluble in about 10 mils of water at 25° C.; miscible with alcohol, ether, fixed and volatile oils.

It does not immediately redden blue litmus paper.

Boiling-point: from 72° to 77° C.

Acetic Ether is readily volatilized, even at a low temperature. It is inflammable, burning with a yellowish flame and an acetous odor.

Upon evaporating 10 mils of Acetic Ether no weighable residue remains.

On allowing 10 mils of Acetic Ether to evaporate spontaneously from clean, odorless blotting paper, the final odor does not resemble that of pineapple (*butylic* and *amylic derivatives*).

Pour carefully 2 mils of Acetic Ether on 10 mils sulphuric acid; no dark ring is developed at the point of contact of the two layers within fifteen minutes (*readily carbonizable organic impurities*).

Mix 20 mils of Acetic Ether with a solution of 20 Gms. of potassium hydroxide in 50 mils of distilled water, allow the mixture to stand, agitating occasionally, or heat it gently under a reflux condenser, until a homogeneous liquid results, and then distil about 25 mils. The distillate complies with the U. S. P. requirements in the test for Methyl Alcohol described under Alcohol.

Shake 25 mils of Acetic Ether in a graduated tube, with 25 mils of water just previously saturated with Acetic Ether; upon separation the ethereal layer measures not less than 24 mils (undue proportion of *alcohol* or *water*).

CALCII LACTOPHOSPHAS

Calcium Lactophosphate

A mixture of calcium lactate, acid calcium lactate, and about 3 percent of calcium phosphate.

Calcium Lactophosphate occurs in white granules or as a white powder, without odor.

It is soluble in water, almost insoluble in alcohol.

Its aqueous solution is acid to litmus.

The addition of ammonium oxalate T. S. to an aqueous solution of Calcium Lactophosphate produces a white precipitate insoluble in acetic acid, but soluble in hydrochloric acid.

Add 10 mils of diluted sulphuric acid and 5 mils of potassium permanganate T. S. to 5 mils of an aqueous solution of Calcium Lactophosphate (1 in 20) and gently warm the mixture; the odor of acetaldehyde is evolved.

Silver nitrate T. S. or ammonium molybdate T. S. produces in an aqueous solution of Calcium Lactophosphate (1 in 20) yellow precipitates.

Mix 0.5 Gm. of Calcium Lactophosphate with 5 mils of sulphuric acid; not more than a slight coloration results (*readily carbonizable impurities*).

Ten mils of an aqueous solution of Calcium

Lactophosphate (1 in 100) mixed with 1 mil of diluted hydrochloric acid does not at once become turbid on the addition of a few drops of barium chloride T. S. (*sulphate*).

Another portion of 10 mils of the aqueous solution (1 in 100) when mixed with a few drops of nitric acid yields not more than an opalescence on the addition of a few drops of silver nitrate T. S. (*chloride*).

The aqueous solution of Calcium Lactophosphate (1 in 50) does not respond to the U. S. P. test for Heavy Metals.

Mix 0.2 Gm. of Calcium Lactophosphate with 1 Gm. of potassium nitrate, ignite the mixture cautiously in small portions at a time until the carbonaceous matter is all or nearly all burned off, then add to the residue 20 mils of diluted sulphuric acid and evaporate the mixture until fumes of sulphuric anhydride are evolved. The residue complies with the U. S. P. requirement for arsenic.

Dissolve 1 Gm. of Calcium Lactophosphate and 2 Gms. of ammonium chloride in 75 mils of distilled water, heat the solution to boiling, and add an excess of ammonium oxalate T. S. (about 20 mils). Allow the precipitate to subside completely, then filter and supersaturate the filtrate with ammonia water; not more than a slight turbidity is produced (*magnesium*).

LITHII SALICYLAS

Lithium Salicylate

Lith. Sal.

It contains, when dried to constant weight at 120° C., not less than 98.5 percent of ($LiC_7H_5O_3 = 143.98$). Preserve it in well-closed containers, protected from heat and light.

Lithium Salicylate occurs as white or grayish-white powder; deliquescent in a moist atmosphere; odorless; taste sweetish.

Very soluble in water and alcohol.

When heated, the salt is decomposed, emitting the odor of phenol, and finally leaving a residue of lithium carbonate and carbon. It imparts a crimson color to a non-luminous flame.

The aqueous solution (1 in 20) is neutral or slightly acid to litmus, and when freshly made is colorless (*iron and organic coloring matters*), and does not effervesce upon the addition of diluted acids (*carbonate*).

Copper sulphate T. S. added to an aqueous solution of the salt (1 in 20) produces a bright green color.

Add a few drops of ferric chloride T. S. to an excess of an aqueous solution of the salt (1 in 4), a deep red color is produced. In dilute solution of the salt (1 in 100) ferric chloride T. S. produces a deep violet-blue color.

Hydrochloric acid added to an aqueous solution of the salt (1 in 20) produces a voluminous white precipitate of salicylic acid.

Dissolve 0.7 Gm. of the salt in 10 mils of distilled water, add an excess of hydrochloric acid and filter; evaporate the filtrate almost to dryness on a water-bath in a 50-mil Erlenmeyer flask, and then add 10 mils of amyl alcohol and cautiously heat until the lower aqueous layer is evaporated; then add 3 drops of hydrochloric acid and boil the liquid for three minutes; the insoluble residue weighs not more than 0.005 Gm. (limit of *other alkalies*). The removal of the water from the amyl alcohol mixture is facilitated by passing a current of air through the hot solution.

Dissolve 1 Gm. of the salt in 50 mils of distilled water, precipitate the salicylic acid by the addition of hydrochloric acid, and filter; the filtrate does not respond to the U. S. Pharmacopœia Test for Heavy Metals.

Assay.—Weigh accurately about 2 Gms. of Lithium Salicylate, previously dried to constant weight at 120° C., incinerate it in a porcelain crucible, and proceed by the method directed by the U. S. Pharmacopœia for the Assay of Alkali Salts of the Organic Acids. It shows not less than 98.5 percent $LiC_7H_5O_3$.

Each millilitre of half-normal sulphuric acid V. S. used corresponds to 0.07199 Gm. of $LiC_7H_5O_3$. Each gramme of Lithium Salicylate, previously dried at 120° C., corresponds to not less than 13.7 millilitres of half-normal sulphuric acid V. S.

MALVÆ FOLIA

Mallow Leaves

Malv. Fol.

The dried leaves of *Malva sylvestris* Linné or *Malva neglecta* Wallroth (Fam. *Malvaceæ*).

Leaves of *Malva sylvestris*, petiolate with petioles up to 10 cm. long, orbicular or reniform, slightly truncate or cordate at the base, 10 to 11 cm. long, 15 to 20 cm. wide, with three to seven shallow, angular or rounded lobes, venation palmate, margins crenate-dentate pubescent on both sides.

Leaves of *Malva neglecta*, with petioles up to 20 cm. in length, orbicular up to 8 cm. wide, base deeply cordate, five to seven shallow rounded lobes, venation palmate, margins with rounded blunt teeth, pubescence more scant than in *M. sylvestris.*

Inodorous; on chewing it becomes very mucilaginous, taste bland.

Leaves showing brown fungous growths of *Puccinia Malvacearum* Montagne must not be used.

Examined under the microscope, sections show the epidermis containing mucilage cells; numerous stomata on both surfaces, each with three or four neighboring cells; trichomes of three distinct types, small, short-stalked glandular hairs, single, large one-celled curved hairs with thick walls and compound hairs in groups of two- to six-celled stellate hairs (the latter especially numerous in *M. sylvestris*); palisade tissue of one or two rows of cells, the mesophyl of three or four rows; the parenchyma containing calcium oxalate in rosette crystals and numerous mucilage cells, which are likewise present in the tissue of the veins; veins with collateral bundles with the sieve tissue toward the lower surface and collenchyma above.

The powder is light green and under the microscope exhibits the characteristic hairs, mucilage cells, epidermis with stomata, and rosette crystals of calcium oxalate.

Malva leaves yield not more than 16 percent of ash.

MANGANI SULPHAS

Manganese Sulphate

Mang. Sulph.

Crystallized Manganese Sulphate containing not less than 62 percent nor more than 68 percent of ($MnSO_4 = 151$).

Manganese Sulphate occurs as pale rose-colored, translucent, tetrahedral prisms; slightly effervescent when exposed. Odorless; taste slightly bitter and astringent.

1 Gm. dissolves in about 1 mil of water at 25° C. and in about 0.6 mil of boiling water; insoluble in alcohol.

The aqueous solution of the salt (1 in 20) is neutral or slightly acid to litmus. It yields with ammonium sulphide T. S. a salmon-colored precipitate soluble in dilute acids; and with barium chloride T. S. a white precipitate insoluble in hydrochloric acid.

Mix a fragment of Manganese Sulphate with a small amount of sodium hydroxide and fuse the mixture, it yields a green mass which dissolves in water to a green solution.

To 20 mils of an aqueous solution of the salt (1 in 100) add a few drops of chlorine water, boil out the excess of chlorine and cool, it is not colored red by potassium sulphocyanate T. S. (*Iron*).

The addition of a few drops of silver nitrate T. S. to 10 mils of an aqueous solution of the salt (1 in 100) previously mixed with a few drops of nitric acid does not at once produce more than an opalescence (*chlorides*).

An aqueous solution of the salt (1 in 50), slightly acidulated with hydrochloric acid, does not respond to the U. S. Pharmacopœia Test for Heavy Metals.

Completely precipitate the manganese from an aqueous solution of 1 Gm. of the salt by the addition of ammonium carbonate T. S. and filter; the filtrate evaporated and gently ignited leaves a residue weighing not more than 0.005 Gm. (limit of other *salts* or *of the alkalies*).

A solution of 1 Gm. of the salt and 1 Gm. of sodium acetate in 10 mils of distilled water, to which a few drops of acetic acid have been added, is not affected by hydrogen sulphide T. S. (*zinc*).

Assay.—Dissolve about 0.5 Gm. of Manganese Sulphate, accurately weighed, in 100 mils of distilled water, add 10 mils of ammonia water and 30 mils of solution of hydrogen dioxide, and boil the mixture until the precipitation is complete. Transfer to a filter and wash the precipitate with distilled water until the filtrate ceases to give a precipitate with barium chloride T. S., then dry the filter and precipitate, and incinerate these, first at a low heat and then at a strong red heat, until the weight is constant. The residue of mangano-manganic oxide (Mn_3O_4) so obtained corresponds to not less than 31.3 percent nor more than 34.3 percent of the weight of the salt taken.

Each gramme of mangano-manganic oxide is equivalent to 1.979 Gm. of $MnSO_4$.

POTASSII SULPHAS

Potassium Sulphate.

Pot. Sulph.

It contains when dried to constant weight at 100° C. not less than 99 percent of ($K_2SO_4 = 174.27$).

Potassium Sulphate occurs as hard, colorless, translucent, six-sided, rhombic prisms terminated by pyramids, or a white powder; permanent in the air. Odorless; taste saline, somewhat bitter.

1 Gm. dissolves in 10 mils of water at 25° C., and in 5 mils of boiling water; insoluble in alcohol.

When heated the crystals decrepitate. At a bright red heat the salt fuses, and at a white heat partial decomposition occurs.

The aqueous solution of the salt is neutral to litmus.

A saturated aqueous solution of the salt yields a white, crystalline precipitate with excess of sodium bitartrate T. S.

An aqueous solution of the salt (1 in 20) yields with barium chloride T. S. a heavy white precipitate, insoluble in hydrochloric acid.

An aqueous solution of Potassium Sulphate (1 in 50), slightly acidulated with hydrochloric acid, does not respond to the U. S. Pharmacopœia Test for Heavy Metals.

Five mils of an aqueous solution of the salt (1 in 25) meets the requirement of the U. S. Pharmacopœia Test for Arsenic.

Assay.—Dissolve about 0.6 Gm. of Potassium Sulphate dried to constant weight at 100° C., accurately weighed, in 100 mils of distilled water, acidulate the solution with hydrochloric acid and heat it to boiling. Gradually add an excess of barium chloride T. S., and heat for thirty minutes on a water-bath, collect the precipitate of barium sulphate on a filter, wash it with distilled water until silver nitrate T. S. fails to produce an opalescence in 2 mils of the filtrate previously acidulated with nitric acid. Dry the precipitate, ignite and weigh the residue. It corresponds to not less than 99 percent of K_2SO_4.

Each gramme of Potassium Sulphate corresponds to not less than 1.328 Gm. of $BaSO_4$.

SCOPARIUS

Scoparius

Scopar. Broom Top

The dried top of *Cytisus Scoparius* (L) Link (Fam. *Leguminosæ*).

Thin, flexible, branched twigs, 2 to 3 mm. thick, with five angles; externally dark green, nearly glabrous, with numerous reddish-brown cork patches; internally yellowish; fracture short-fibrous, that of thicker pieces tough and splintery; upper leaves, sessile, often only 1-foliolate, obovate, present in small amount or absent.

Odor slight, on bruising more distinct and peculiar; taste disagreeable, bitter.

Scoparius yields not more than 5 percent of ash.

HARRISON LAW DECISION RELATING TO FILLING OF PRESCRIPTIONS ENDORSED

The officials of the Treasury Department, after further consideration of the controverted questions regarding Treasury decisions 2213 and 2244, involving details of the Harrison Anti-narcotic Law, advise that the Internal Revenue Bureau has received communications from high physicians and medical organizations in the country emphatically indorsing the position taken by the Internal Revenue office and the Treasury Department in the matter of refilling prescriptions, which was denied in Treasury decision 2213.

It is stated that these communications from medical men and organizations take the position that the authorizing of the refilling of prescriptions containing *even minimum* quantities of narcotic drugs would do more to encourage the drug habit than any other action that might be taken under the law. They protest, also, against the continuation of the exemption in section 6 of the law, and say that, next to permitting the refilling of prescriptions, the indiscriminate sale of medicinal compounds containing habit-forming quantities of these drugs is a weak feature of the law and will be helpful in encouraging the forming of drug habits among the people.

The department officials decline to make public the names of the organizations and physicians who take this position, stating that the communications were addressed to the department without any intimation that a public discussion of the matter is desired.

COUNCIL BUSINESS

Council Letter No. 1 will be found in October number, p. 1271.

A. PH. A. COUNCIL LETTER NO. 2.

PHILADELPHIA, PA., September 22, 1915.

To the Members of the Council:

At the meeting of the Council at San Francisco, held August 13, 1915, Professor Julius A. Koch was elected Reporter on the Progress of Pharmacy, to succeed Professor C. Lewis Diehl.

Following this, there was given in Council Letter No. 2 a statement by Professor Julius A. Koch, which by reason of Motion 25 having carried, is omitted.

J. W. ENGLAND,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 3.

PHILADELPHIA, PA., September 27, 1915.

To the Members of the Council:

Motion No. 3 (*Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy with Salary, etc.*). Moved by W. C. Alpers, seconded by G. M. Beringer, that Prof. C. Lewis Diehl be given the title of Emeritus Reporter on the Progress of Pharmacy, at an annual salary of six hundred dollars, and be made a member of the Council, ex-officio. (Withdrawn.)

Motion No. 4 (*Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy without Salary, etc.*). Moved by H. M. Whelpley, seconded by Charles E. Caspari, that Prof. C. Lewis Diehl be elected Emeritus Reporter on the Progress of Pharmacy without salary, and made an ex-officio member of the Council. (Ruled out of order.)

J. W. ENGLAND,
Secretary of Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 4.

PHILADELPHIA, PA., September 27, 1915.

To the Members of the Council:

Motion No. 1 (*Conference of Committee on National Formulary*) has received a majority of affirmative votes. The appropriation stated therein has been approved by the Committee on Finance.

Motion No. 2 (*Election of Members; Applications Nos. 1 to 5 Inclusive*) has received a majority of affirmative votes.

Under date of September 19, the following communication was received from Fabius C. Godbold:

"Your favor of the 7th inst. is received, and it gives me sincere pleasure to learn that I was elected to the high position of Honorary President of the American Pharmaceutical Association by the Council at the San Francisco meeting. Not having attended an annual meeting for several years, I feared that I would be dropped from the Council and forgotten, but this shows me that I am still with the members of the Association in spirit at least. I hope I may be able to attend the next annual meeting, and show, by my presence, my deep appreciation of the very high honor conferred upon me.

"May the A. Ph. A. 'live long and prosper' is my earnest wish!"

The Massachusetts College of Pharmacy, through its Dean, Dr. Theo. J. Bradley, has presented to the Association a considerable number of duplicate volumes of the Proceedings of the A. Ph. A., including many old and rare volumes. The Association is the recipient, also, of a similar gift from the National College of Pharmacy of the George Washington University, through Dean Kalusowski. General Secretary Day writes: "I have received from Dr. Kalusowski a good-sized packing-case filled with duplicate volumes of the Proceedings for presentation to the Association. Many of these are original packages as sent out by members at that time and subsequently turned over to the college. Many of these are original packages as sent out by Professor Maisch as Permanent Secretary. They were sent to Washington members at that time and subsequently turned over to the college. Many of these volumes are old and rare numbers." The volumes have been sent by General Secretary Day to the Lloyd Library for storage.

It is fitting that a vote of thanks be tendered the donors, and the following motion is offered:

Motion No. 5 (*Donation of A. Ph. A. Proceedings*). Moved by W. B. Day, seconded by J. W. England, that a vote of thanks be passed to the Massachusetts College of Pharmacy and the National College of Pharmacy of the George Washington University for their very generous donation of A. Ph. A. Proceedings of the Association.

Otto Raubenheimer, Chairman of the Committee on Recipe Book, reports the death of John Roemer, of White Plains, N. Y., on August 20, 1915, who was elected a member of the Committee at San Francisco by the Council on August 13, 1915, term to expire in 1918. He suggests as a successor Clarence G. Spalding, of the Spalding Drug Company, 89 Church Street, New Haven, Conn. Mr. Spalding has been a member of the Association since 1910.

Motion No. 6 (Election of Clarence G. Spalding as a Member of the Committee on Recipe Book, Term Expiring in 1918). Moved by Dr. F. E. Stewart, seconded by J. W. England, that Clarence G. Spalding be elected a member of the Committee on Recipe Book, term to expire in 1918, to succeed John Roemer, term to expire in 1918.

The following resolutions passed by the National Association of Retail Druggists at its recent annual convention and sent to General Secretary Day are submitted for consideration, or reference to the Committee on National Formulary, as the Council may desire:

"*Resolved,* That we consider that the liquor question should not influence the sound judgment, wisdom and intelligence of the Revision Committee of the United States Pharmacopœia; and be it further

"*Resolved,* That we petition the revisers of the National Formulary to include in the next edition of that standard work monographs on whisky and brandy, containing satisfactory descriptions and tests for the identification of whisky and brandy suitable for medicinal use; and be it

"*Resolved,* That we ask the Board of Trustees of the United States Pharmacopœia to investigate fully the rumors which are afloat relative to the action of the Committee on Revision in deleting these two substances. . .

"*Resolved,* That the National Association of Retail Druggists recommend to the Committee on Revision of the National Formulary that it include in its next edition at least two of the formulas authorized by the Bureau of Internal Revenue for denaturizing alcohol to render it suitable for rubbing purposes and tax-free.

Motion No. 7 (Election of Members). You are requested to vote on the following applications for membership:

No. 6. Andrew L. Stroup, Monte Vista, Col., rec. by G. D. Timmons and E. H. Wisner.
No. 7. George Wm. Moschel, 120 E. St. Paul St., Spring Valley, Ill., rec. by William B. Day and E. N. Gathercoal.
No. 8. John A. Roddy, M.D., Philadelphia College of Pharmacy, Philadelphia, Pa., rec. by George M. Beringer and J. W. England.
No. 9. William P. Lorsch, Bruce, S. D., rec. by E. C. Bent and D. F. Jones.
No. 10. Arthur Lawrence Theodore Jorgensen, 1026B Shotwell St., San Francisco, Cal., rec. by Val. Schmidt and William B. Day.
No. 11. Willis Henry Alpers, 1033 Third St., San Bernardino, Cal., rec. by Carl F. J. Dyna and William C. Alpers.

J. W. England,
Secretary of Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 5.

Philadelphia, Pa., October 4, 1915.

To the Members of the Council:

With reference to the resolutions from the N. A. R. D., submitted in Council Letter No. 4 (p. 8), Frank H. Freericks writes, under date of September 30, 1915, as follows:

"I have read with great interest Council Letter No. 4, and particularly that part which refers to the resolutions offered by the National Association of Retail Druggists pertaining to the omission of brandy and whisky from the new Pharmacopœia. It appears to me that this is a question which is particularly within the province of the National Association of Retail Druggists to raise, and that it would be but a part of wisdom and justice for the Council to take definite action, making plain with reference to it that such matter is appreciated and always assured of most earnest consideration. The resolutions as presented by the N. A. R. D. have my most hearty approval.

"Some months ago the public press carried a rather sensational article emanating from a member of the Revision Committee who sought to convey the impression that brandy and whisky had been omitted from the Pharmacopœia in order to serve the cause of prohibition, which said person seems strongly to advocate. If the newspaper articles in question correctly quoted the person to whom I refer, it would seem that pharmaceutical and therapeutic value might cease to be a controlling factor in deciding what may or may not be contained in the Pharmacopœia.

"In order to bring this matter properly before the Council, I move that the four separate resolutions as submitted by the National Association of Retail Druggists be also adopted by Council, substituting the name of the Council of the American Pharmaceutical Association for that of the National Association of Retail Drŭggists wherever necessary. Of course, this includes the one pertaining to denatured alcohol."

Under date of October 1, 1915, Vice-Chairman Scoville, of the Committee on National Formulary, writes that he received the "N. A. R. D. Resolutions" from the N. A. R. D. Office, date of September 21, 1915, but with no intimation that the resolutions had been sent, also, to the Council or officers of the A. Ph. A. Hence he prepared a bulletin on the subject, which he transmitted to the members of the Committee on National Formulary for their consideration.

The special committee to inquire into the matter of fire insurance for the property of the A. Ph. A. located in the Lloyd Building, F. H. Freericks, Chairman, reports progress and states that a final report will be submitted by the committee as soon as the first insurance rate for the contents of the building can be obtained.

J. W. England,
Secretary of Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 6.

Philadelphia, Pa., October 16, 1915.

To the Members of the Council:

The vote of the Council on Motion No. 3 (Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy, at an annual salary of six hundred dollars, and ex-officio member of the Council) has not been called, and the motion has been withdrawn by W. C. Alpers, who made it, and G. M. Beringer, who seconded it.

Motion No. 8 (Tabling Motion No. 4 of Council Letter No. 3). Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that Motion No. 4 be laid on the table. (Ruled out of order.)

Motion No. 9 (Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy). Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that Prof. C. Lewis Diehl be elected Emeritus Reporter on the Progress of Pharmacy and ex-officio member of the Council. (Ruled out of order.)

Motion No. 10 (Payment of Balance of Honorarium Voted Prof. C. Lewis Diehl). Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that the balance of the honorarium voted Professor Diehl, specifically, for work done on the National Formulary, Fourth Edition, be paid at once, under the conditions of the offer submitted above by Hy. P. Hynson. This motion conflicts with the method of payment of honorarium provided for in action of Council at San Francisco on August 13, 1915, when it was decided that the honorarium "be paid in two instalments, one instalment of $500 at once, and the other during the year 1916." Presumably, the mover and seconder of this motion wish that the previous action of the Council referred to be reconsidered in so far as relates to the payment of the second instalment of $500; and if there is no objection by the Council, this will be done. (Ruled out of order.)

An alternative motion to *Motion No. 10 (On Payment of Balance of Honorarium Voted Prof. C. Lewis Diehl)* is offered by G. M. Beringer and seconded by Dr. F. E. Stewart, as follows:

"*Motion No. 11 (Payment of Balance of Honorarium Voted Prof. C. Lewis Diehl).* Moved by G. M. Beringer, seconded by Dr. F. E. Stewart, that the action of the Council at San Francisco in deciding 'that an honorarium be voted to Prof. C. Lewis Diehl for his work on the National Formulary, Fourth Edition, to be paid in two instalments, one instalment of $500 at once, and the other during the year 1916,' be reconsidered in so far as relates to the second instalment of $500, and that this latter be paid as soon as, in the judgment of the Treasurer and the Committee on Finance, the condition of the Treasury and the interests of the Association will permit."

J. W. England,
Secretary of Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 7.

Philadelphia, Pa., October 27, 1915.

To the Members of the Council:

Motions No. 5 (Donation of A. Ph. A. Proceedings), No. 6 (Election of Clarence G. Spalding as a Member of the Committee *on Recipe Book, Term Expiring 1918*), and *No. 7* (*Election of Members; Applications Nos. 6 to 11 Inclusive*), have each received a majority of affirmative votes.

Points of order have been raised regarding Motions Nos. 4, 8, 9, 10, and 11 of Council Letters Nos. 3 and 6, and the Chairman has ruled on these.

Motion No. 4.—Moved by H. M. Whelpley, seconded by C. E. Caspari, that Prof. C. Lewis Diehl be elected Emeritus Reporter on the Progress of Pharmacy without salary and made an ex-officio member of the Council.

Motion No. 8.—Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that Motion No. 4 be laid on the table.

Motion No. 9.—Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that Prof. C. Lewis Diehl be elected Emeritus Reporter on the Progress of Pharmacy and ex-officio member of the Council.

Motion No. 10.—Moved by Hy. P. Hynson, seconded by Charles Caspari, Jr., that the balance of the honorarium voted Professor Diehl, specifically, for work done on the National Formulary, Fourth Edition, be paid at once, under the conditions of the offer submitted by Hy. P. Hynson.

Motion No. 11.—Moved by G. M. Beringer, seconded by Dr. F. E. Stewart, that the action of the Council at San Francisco in deciding "that an honorarium be voted to Prof. C. Lewis Diehl for his work on the National Formulary, Fourth Edition, to be paid in two instalments, one instalment of $500 at once, and the other during the year 1916," be reconsidered in so far as relates to the second instalment of $500, and that this latter be paid as soon as, in the judgment of the Treasurer and the Committee on Finance, the condition of the Treasury and the interests of the Association will permit.

The points of order received on above motions were referred to Chairman Eberle, who decides as follows:

My rulings are:

(1) *Ruling on Motion No. 4.*—It becomes my conscientious duty, as I see it, to sustain the protest, and I therefore rule that the office of Emeritus Reporter cannot be created in the manner attempted.

Article V of our Constitution provides an easy method for its amendment. This readily opens the way for legally creating the office of Emeritus Reporter and providing proper recognition for the splendid services of our worthy former Reporter.

(2) *Ruling on Motion No. 8.*—Out of order, because Motion No. 4 is not in order.

(3) *Ruling on Motion No. 9.*—Out of order. Subject covered by ruling on Motion No. 4.

(4) *Ruling on Motion No. 10.*—Out of order, because motion was offered subject to no objection to reconsideration of action of Council at San Francisco on August 13, 1915, and objection has been made.

(5) *Ruling on Motion No. 11.*—In order. Objections to reconsideration not well founded. It is true that the sessions of organized bodies are governed by parliamentary law and ordinarily a motion to reconsider must be made by one who voted in favor of the original motion; but it must be recognized that the conduct of the business of the Association by mail is the equivalent of its conduct by annual meetings; that it is not possible for all the members of the Council to be present at the annual meetings, and that members of the Council should not be deprived of their rights of membership if not present at the annual meetings.

Chapter VIII, Article 11, is quite specific on this point. I quote as follows:

"In all questions arising before the Council or its committees, and which can be disposed of by a positive or negative vote, the chairman of the Council, or the chairman of the committee, *may take the vote of their respective bodies in writing, and the same shall have the same force and effect as if the members had been personally present,* a majority of the votes cast being considered sufficient to decide a question."

This is tantamount to saying that a vote by mail is equivalent to a vote in annual meeting.

Mr. Beringer was not present at San Francisco when the original motion was voted upon, on August 13, 1915, and could not vote for or against it. His motion does not change the intent of the San Francisco action except the greater flexibility to the time of paying the second instalment. The ruling might be different had the action of the Council at San Francisco been approved by the Association in general session, but the Council action was in the year 1915–16, and not 1914–15, and hence will come up for approval in the 1915–16 annual meeting. Therefore its consideration is still in the hands of the Council.

It may be urged that if Motion No. 10 is out of order Motion No. 11 is out of order, also. But the conditions are different. Motion No. 11, with its request for reconsideration, was not offered "subject to objection," as was motion No. 10, neither was it offered as a substitute motion; it was offered as an alternative motion,—that is, as one of two motions.

I rule that Motion No. 11 is entirely in order.

The following communication was received from Frank H. Freericks, E. H. Thiesing, and Theo. D. Wetterstroem, Special Committee on Insurance of Property of A. Ph. A. Stored in the Building of Lloyd Brothers, at Cincinnati:

"The special committee charged with the duty to determine the need for insurance on the property of the Association as located in the building of Lloyd Brothers at Cincinnati begs leave to report as follows:

"*First.*—We find the Association property to be splendidly taken care of in the building of Lloyd Brothers, located at the southeast corner of Elizabeth and Mound Streets.

"*Second.*—The building in question is of solid brick and mill construction. It is a most substantial building. It is used as a warehouse or stock-house, in which there are stored principally vegetable drugs and Lloyd Library publications and documents. In the lower story rear of the buildings are located the grinding mills, which are operated by electricity, and only at that place is fire for heating purposes used. Said part of the building is separated from the rest by a solid brick wall. The surroundings or exposures to the building are good, with a possible exception of one small frame exposure.

"*Third.*—We were given every opportunity to go through the entire building and to have a complete understanding through the courtesy of Professor Lloyd, and find that the firm of Lloyd Brothers do not carry any insurance on their property contained in the building. The building cannot in any manner be considered as fire-proof. The committee is unanimously of the opinion that if they had property of their own of value contained in the building, that then they would carry insurance on it.

"*Fourth.*—The insurance agency of Joseph T. Dillhoff has been kind enough to have the building re-rated, and we learn that the rate on contents is 1.43, or $14.30 per thousand, indicating of itself that the risk is regarded to be of more than ordinary hazard. If insurance is desired, the property being of a special nature, it will be required to agree upon its value, so that in case of loss there can be no dispute as regards values."

General Secretary Day states that:

"The appropriation for the Year Book in the Budget of 1915 was $2500.00. The expense has been $3000.95. Accordingly, the Finance Committee has approved an additional appropriation of $500.95 to cover the expense of the Year Book, Volume 2, and Prof. J. A. Koch moves, and I second, the granting of such an appropriation."

The number of reading pages in the Year Book of 1913, recently issued, was about eight percent more than the previous book, and the number of books printed was eleven percent more.

This motion will be regarded as *Motion No. 12 (Appropriation of $500.95 to Cover Expenses of 1913 Year Book)*.

At the San Francisco meeting of the Council held August 13, 1915, Mr. C. Mahlon Kline was elected Local Secretary for 1916. Mr. Kline writes in relation thereto as follows:

"Council of the American Pharmaceutical Association.

"Gentlemen:

"I have been officially advised of my election as Local Secretary of the American Pharmaceutical Association for 1916, and I have delayed answering the notification, hoping that I could see my way clear to accept service, but the constantly-increasing pressure of my business interests bids me pause, and compels me to decline the service.

"It is hardly necessary for me to add that I deeply appreciate the honor conferred, and stand ready at all times to do what I can for the American Pharmaceutical Association. Your organization represents the highest ideals in American pharmacy, and my best wish is that its membership may largely increase and its influence for good become widespread.

"Very truly yours,
"C. Mahlon Kline.

"Philadelphia, October 26, 1915."

If there is no objection, Mr. Kline's declination will be accepted.

Motion No. 13 (Election of Local Secretary for 1916). Moved by C. A. Mayo, seconded by G. M. Beringer, that Charles Holzhauer, of Newark, N. J., be elected Local Secretary for 1916.

Motion No. 14 (Authorizing Purchase of

Bond from Ebert Prize Fund). Moved by J. A. Koch, seconded by W. B. Day, that the Treasurer of the Association be authorized to purchase a $1000 St. Louis, 4 percent, 1928 registered bond at 98½, as an investment, from the Ebert Prize Fund. (Motion withdrawn.)

Motion No. 15 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 12. Mrs. Mary Leinbaugh Smith, Waverly, Kan., rec. by William B. Day and C. M. Snow.
No. 13. Harry Kolsch, 202 Harrison St., Leadville, Col., rec. by George C. Whitmore and Robert H. McKenzie.
No. 14. J. Laurence Randles, Granite Falls, Wash., rec. by C. W. Johnson and Edith Hindman.
No. 15. Leon Ralph Hess, 127 University St., West Lafayette, Ind., rec. by C. B. Jordan and Charles O. Lee.
No. 16. Glenwood Borders, 127 University St., West Lafayette, Ind., rec. by C. B. Jordan and W. F. Gidley.
No. 17. Arthur James Winters, 522 Pleasant St., Oak Park, Ill., rec. by William Gray and William B. Day.
No. 18. David Thomas Briles, 124 Hay St., Fayetteville, N. C., rec. by W. W. Horne and E. V. Howell.
No. 19. Rudolph Breves, 684 Sumner Ave., Newark, N. J., rec. by Hugo Kantrowitz and Robert S. Lehman.
No. 20. Paul Clarence Laurence, 195 Exchange St., Rochester, N. Y., rec. by Eugene L. Maines and Hilton F. Snider.
No. 21. Frontis Lentz, Mooresville, N. C., rec. by E. F. Kelly and H. M. Whelpley.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 8.

Philadelphia, Pa., October 30, 1915.

To the Members of the Council:

The following resolution has been received from the Local Branch of the American Pharmaceutical Association of Washington, D. C.:

"Whereas, The Council of the American Pharmaceutical Association has very profitably and wisely largely grown in the number of its members and has become a desirable and effective working body at the annual meetings; and

"Whereas, A Council of this size cannot be maintained and its business properly transacted by mail; therefore be it

"*Resolved*, That it is the sense of the Local Branch of the American Pharmaceutical Association of Washington, D. C., that the Council should be authorized to elect three members, who, together with the Chairman and the Secretary of the Council, shall constitute an executive committee, this committee to be empowered to carry on the business of the Association as mapped out, at its annual meeting during the intervals of the said annual meetings."

Motion No. 16 (*Executive Committee of the Council*). Moved by S. L. Hilton, seconded by M. I. Wilbert, that the above resolution of the Washington Branch be approved by the Council and that the By-Laws of the Council be amended at the next annual meeting to provide for an Executive Committee of the Council with power to carry on the business of the Association along the lines indicated by the Washington Branch.

Discussion is invited. A vote on the motion will be taken in two weeks.

The following resolution has been received from the Local Branch of the American Pharmaceutical Association of Washington, D. C.:

"That the Council be requested to invite Messrs. H. B. Mason, of Detroit; Charles R. Sherman, of Omaha; Charles Caspari, Jr., of Baltimore; F. C. Henry, of Washington, D. C., and L. C. Blakeslee, of St. Louis, to become a commission to look into the financial affairs of the American Pharmaceutical Association, its manner of accounting, its revenues and its expenditures, and report at the next meeting, with such recommendations as this commission may conclude will be advantageous to the welfare and usefulness of the American Pharmaceutical Association."

Motion No. 17 (*Commission on the Financial Affairs of the American Pharmaceutical Association*). Moved by S. L. Hilton, seconded by M. I. Wilbert, that the above resolution of the Washington Branch be approved by the Council.

Discussion is invited. A vote on the motion will be taken in two weeks.

With reference to the resolutions from the N. A. R. D., submitted in Council Letter No. 4 (p. 8), it should be stated that Mr. Freericks's motion of Council Letter No. 5 (p. 10) has not been seconded.

Charles E. Caspari, however, makes a motion that the "N. A. R. D. Resolutions" be referred to the Committee on National Formulary, as the subject matter is of a technical or scientific character and properly belongs within the scope of work of the Committee on National Formulary. Mr. Caspari's motion is seconded by Dr. F. E. Stewart. It will be regarded as *Motion No. 18 (Referring N. A. R. D. Resolutions to Committee on National Formulary)*.

J. W. England,
Secretary of Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 9.

Philadelphia, Pa., November 16, 1915.

To the Members of the Council:

Gentlemen:

Motions No. 11 (On Payment of Second Instalment of Honorarium to Prof. C. Lewis Diehl), No. 12 (Appropriation of $500.95 to Cover Expenses of 1913 Year Book), No. 13 (Election of Charles Holzhauer, Newark, N. J., as Local Secretary for 1916), and *No. 15 (Election of Members; Applications Nos. 12 to 21 inclusive)*, have each received a majority of affirmative votes.

Regarding *Motion No. 18 (Referring N. A. R. D. Resolution in Council Letter No. 14 to Committee on National Formulary)*, Frank H. Freericks has raised the question that it is out of order, and the question has been referred to Chairman Eberle for his decision.

In re subject of insuring property of A. Ph. A. stored in the Lloyd Library at Cincinnati, Frederick J. Wulling writes:

"Concerning the report of the special committee on insurance of property of A. Ph. A. stored in the Lloyd Library in Cincinnati, let me say that I am an advocate of insurance protection. The committee states that the building is not fire-proof. I feel that we should insure the property. Possibly Messrs. Lloyd Brothers would prefer to have us do so."

Motion No. 19 (Executive Committee of the Council). Moved by George M. Beringer, seconded by C. H. LaWall, that the proposed action as outlined in the first resolution of the Washington Branch (C. L. No. 8) and in Motion No. 16 be published in the Journal, and that the opinion of the members of the Association thereon be invited, and that final action be taken at the forthcoming meeting at Atlantic City.

Motion No. 20 (On the Financial Affairs of the Association). Moved by George M. Beringer, seconded by C. H. LaWall, that we request our Finance Committee, with a special committee of five members to be appointed by the Chairman of the Council, to make a special study of the available assets and current expenses of the Association and see what suggestions they can make regarding the improving of the financial status of the Association.

Discussion on the two substitute motions above offered is requested. A vote will be called in two weeks.

General Secretary Day writes:

"As one of the party who made the memorable trip to San Francisco, I know that you enjoyed the hospitable treatment accorded to our party by the Denver pharmacists and that you remember with much pleasure the Saturday that we spent in Denver. I happen to know that the Denver pharmacists raised by individual contribution a very considerable sum of money which was expended for the entertainment of the visiting members at that time. It occurs to me that it would be a graceful act on our part to show our appreciation of this hospitable treatment in some manner which would be pleasing to our Denver friends and would be a help to them in the good work which they, through the Denver Branch, are doing for pharmacy and for the American Pharmaceutical Association.

"As you know, one of the activities of the Denver Branch is the collection of a pharmaceutical library, to which a considerable number of accessions by gift have already been received. I have learned from Mr. Nitardy that the Denver Branch possesses nearly a complete set of our Proceedings. The volumes lacking from the set owned by the Denver Branch are the following: 1911, 1872, 1870, and all prior to 1869. I would like to offer a motion in the Council that the Denver Branch be presented with the volumes necessary to complete their set, viz., those for the years 1911, 1872, 1870, 1868, and all prior as far as our stock permits, and that these volumes be presented as a gift from the Association in appreciation of the good work which the Denver Branch is doing for the Association and for pharmacy."

Motion No. 21 (Presentation of Proceed-

ings to Denver Branch). Moved by W. B. Day, seconded by J. W. England, that the volumes of the Proceedings for 1911, 1872, 1870, 1868, and all prior as far as stock permits, be presented as a gift from the Association to the Denver Branch in appreciation of the good work which the Denver Branch is doing for the Association and for pharmacy.

Motion No. 22 (*Additional Appropriation of $100 for Printing, Postage, and Stationery*). Moved by J. A. Koch, seconded by W. B. Day, that an additional appropriation of $100 be made for the budget item of printing, postage, and stationery; the appropriation is approved by the Committee on Finance.

The item is now exhausted and it is estimated that $100 will be sufficient for the charges against this account until the close of the fiscal year.

Dr. A. R. L. Dohme writes that at the San Francisco meeting a resolution was presented to the Scientific Section by himself and reported favorably to that Section by a committee appointed by its Chairman and adopted, but it has not yet been presented to the Council for approval.

The resolution is as follows:

"WHEREAS, It is generally admitted that commercial progress in Germany in the past two decades has been the result of a hearty and complete coöperation between the scientific and industrial organizations of that country; and

"WHEREAS, All financiers and business men will concede that the application of the science of the university to the practice of the factory will produce similar results in this country; and

"WHEREAS, It is our opinion that the next great stride in our commercial growth will be in the direction of applying our scientific training represented by the university to practical use in our industries; and

"WHEREAS, The factory and the university have stood aloof from one another to the disadvantage of both these many years; therefore be it

"*Resolved,* by the Scientific Section of the American Pharmaceutical Association, That the United States Chamber of Commerce be requested to call a special meeting of representatives of the leading institutions of learning and of leading large manufacturing interests of the country, together with representatives of the leading banking interests of the country, for the purpose of considering ways and means of generating and fostering a spirit of closer coöperation between them than has heretofore existed or now exists."

A motion to approve the above resolution adopted by the Scientific Section is in order.

Editor E. G. Eberle writes that: "On motion of J. D. Turner, seconded by C. E. Caspari, resolutions were adopted in the Scientific Section of the American Pharmaceutical Association as follows:

"*Resolved,* That in order to promote the organic chemical industry of this country, and especially the manufacture of organic synthetic products used in the practice of medicine, a duty should be imposed on all such products, as well as the raw materials entering into composition of such, to the extent of 30 percent *ad valorem* and 7 cents per pound specific.

"It is further resolved that the Congress of the United States be petitioned to enact legislation to this effect."

A motion to approve the above resolution adopted by the Scientific Section is in order.

The following report is submitted:

To the Members of the Council:

Gentlemen:

On behalf of the Committee on Unofficial Standards, I desire to report to the Council that the following additional monographs have been adopted and copy for these has been forwarded to the Editor for publication in the Journal of the American Pharmaceutical Association, in accordance with the instruction of the Council:

Caramel
Chionanthus
Corydalis
Matico
Oleum Betulæ Empyreumaticum Rectificatum
Vanilla

Yours very truly,
GEORGE M. BERINGER,
Chairman.

CAMDEN, N. J., November 6, 1915.

J. W. ENGLAND,
Secretary of Council.
415 N. 33rd St., Philadelphia, Pa.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CINCINNATI.

The regular monthly meeting of the Cincinnati Branch, American Pharmaceutical Association, was held at Lloyd Library, November 23, 1915.

After a short business session, during which the minutes of the first annual meeting were duly approved, President Charles G. Merrell introduced the speaker of the evening, Mr. W. H. Jones, who gave a very exhaustive and comprehensive discourse on "Aspirin and Other Synthetics: Their Uses and Abuses."

Mr. Jones divided most of the synthetics into two classes: namely, antipyretics and hypnotics—the *benzene series,* from which aspirin may be obtained, and the *methane series,* which mostly form synthetics with hypnotic properties. From the *benzene series* the first step is the production of benzoic acid, then the salicylic acid, whereby substitution with acetyl, the product of acetylsalicylic acid is produced. This was discovered in 1858, but patented by the Farben Fabriken, of Elberfeld, as aspirin. Later The Heyden Company produced an acetylsalicylic acid, but the patents on all the different aspirins will expire in 1917.

While the original aspirin and the acetylsalicylic acid are chemically alike, they do not have the same physiological effect, and under the microscope show a decided variance in crystalline form, those of aspirin being acicular and those of acetylsalicylic acid being prismatic with decided blunt ends.

Mr. Jones described the properties of quinine, claiming it to be the antipyretic *par excellence,* and then showed the numerous attempts to produce antipyretics by synthesis, such as methyloxyquinoline, by alkali, quinoline, thermofugin, and others, with the idea of producing new bitter products, also phenylhydrazone, etc.

He spoke of the formation of antipyrin, which, while a good antipyretic, is open to many idiosyncrasies of the patient; also of pyramidone, a derivative of antipyrin, which is claimed to have no toxic effect. On the whole, all antipyretics, obtained from aniline, of which acetanilide, discovered in 1886, is greatly used as an ingredient in headache preparations, are a dangerous class of medicines for the use of the laity, on account of their toxic properties. The speaker illustrated further the formation of acetphenetidine, or phenacetine, accrediting same with the best antipyretic properties, but still having poisonous effects similar to acetanilide, both on the blood and kidneys, the acetanilide being oxidized into aniline, hence its poisonous properties.

On the other hand, while the hypnotics of older times were chiefly alcohol, chloral, etc., the synthetical hypnotics are mainly obtained from the methane series. These may be divided into three classes: first by substitution or presence of chlorine or bromine; second, by alkyl derivatives; or, third, by aldehydes or ketone derivatives.

Mr. Jones was profuse in his illustrations, showing the chemical formation of such products as chloral, butyl chloralhydrate, sulphuric ether, veronal, diethylsulphonic acid, sulphonal, paraldehydes, etc.

The speaker wound up his interesting discourse with the prophetic saying, "The time of synthetics is practically over; now turn to plant drugs for much safer remedies and more gratifying results."

CHARLES A. APMEYER, Secretary.

The regular monthly meeting of the Cincinnati Branch of the American Pharmaceutical Association was held December 14, at Lloyd Library.

After a short business session, during which the Secretary's report was accepted, the president, Charles G. Merrell, introduced the speaker of the evening, Dr. S. P. Kramer, who chose for his subject, "Alcohol." The lecturer was very emphatic in classing alcohol with the narcotics, pointing out its insidious action by showing the necessarily increased consumption, in order to obtain the same effects.

He cited the historical origin of the name alcohol from the Arabic "Alcol," a substance containing very finely powdered antimony, used for painting eyebrows; and when applied to distillation it meant a very finely divided volatile substance, same being used in religious rites, as well as forming a favorite luxury for causing exhilaration among the upper classes and the rich.

While the production of alcohol, even in domestic economic processes, as in the making of bread, or from grain, potatoes, or beets, is well-nigh universal, the effects of the consumption of same are always narcotic; self-control is lost, speech may be brilliant but foolish, sexual instinct is deadened, the effects upon the individual may be bellicose, morose, or hilarious, and, while the immediate effect is probably stimulating, the after-effect of depression is self-apparent. The speaker noted the relation of alcohol after stating that alcohol was used as an anæsthetic long before ether.

To illustrate the fact that alcohol is not a cardiac stimulant, he says that no modern physician would prescribe alcohol for such purposes. Taking the statistics of a city hospital, where in 1910 in six wards 654 pints of whisky and 150 pints of brandy were consumed, in 1914, in the same six wards, two and three-fourths pints of whisky and no brandy were prescribed.

Alcohol is a food for the body, but that does not justify its use, because the grain from which it is made has more food value than the alcohol; and, while the alcoholic action on digestion is irritant, the alcohol in small doses acts as a stomachic tonic, especially in beer.

Dr. Kramer showed a number of charts and pictures illustrating the depressing effects and decrease of mental activity on inmates of prisons and similar institutions. After the lecture a spirited discussion took place, showing the pros and cons regarding the moderate use of alcohol, participated in by Messrs J. U. Lloyd, F. H. Freericks, C. T. P. Fennel, Theo Wetterstroem, L. Werner, and others.

CHARLES A. APMEYER, Secretary.

NEW YORK.

Minutes of the regular meeting of the New York Branch of the American Pharmaceutical Association, held at the New York College of Pharmacy Building, December 13, 1915. Called to order by President Lascoff at 8:40 P.M.

The minutes of the November meeting were ordered adopted as read.

Treasurer Weinstein's report was received with thanks.

The chairmen of the Committees on Membership and Fraternal Relations, as well as the member of the Council, were absent and no reports were received.

Dr. Diekman, Chairman of the Committee on Progress of Pharmacy, was not present. A letter of regret from him was read by the Secretary, in which the writer promised to incorporate his report with that for the next meeting.

Dr. Anderson, for the Committee on Legislation and Education, reported that there was little of importance going on at the present time. In a general way he called attention to the different legislative activities for the coming year.

Communications from Mr. Thomas F. Main to the President and from the latter to Mr. Charles Holzhauer relative to the next annual meeting of the American Pharmaceutical Association were read and received.

Mr. Charles Holzhauer, the local secretary for the Atlantic City meeting, was present and, upon call from the President, expressed his pleasure in so far as the New York Branch had expressed its willingness to assist him. After hearing a tentative outline of his plans it was decided that the President appoint a committee of five to coöperate with the local secretary and such other committees as might be appointed.

Jacobs Weil, 269 Canal Street, New York City, a member of the parent association, was elected a member of the Branch.

The following applications were received and ordered forwarded to the General Secretary:

Edward Plaut, No. 120 William Street, New York City.

Joseph Goodman, Broadway and Baxter Avenue, Elmhurst, L. I., N. Y.

Frederick A. Leslie, 115 West Sixty-eighth Street, New York City.

F. S. Frankfurter, 807 Courtland Avenue, New York City.

The speaker of the evening, Director Lucius P. Brown, of the Bureau of Food and Drugs of the Department of Health of the City of New York, was then introduced and entertained the members with some exceedingly interesting reminiscences, both instructive and humorous, covering his many years of work along these lines.

After a spirited discussion of the speaker's remarks by Messrs. Diner, Mayer, Weinstein, Hostmann, Lascoff, Gane, and others, a rising vote of thanks was voted the speaker.

President Lascoff appointed the following members as a Committee on Nominations for officers for the coming year, to report at the January meeting:

H. V. Arny, Chairman, Thomas Latham, and B. L. Murray.

Jeannot Hostmann, Secretary.

PITTSBURGH

The second of this winter's series of meetings of the Pittsburgh Branch of the American Pharmaceutical Association was held Friday, December 17. The subject for the evening was "Enzymes of Plants," which was handled in a masterly manner by Dr. J. H. Wurdack, instructor in Latin and assistant to the Chair of Chemistry at the Pittsburgh College of Pharmacy. The lecture was declared by those who were fortunate enough to hear it, one of the most interesting and instructive talks of the several with which Dr. Wurdack has favored the Branch.

After a review of the properties of enzymes, their classification was explained and a number of enzymes discussed in detail; the part played by enzymes in the germination of seeds, in the ripening fruits, in the formation of bark and leaf colors, in the production of odors, and in the general processes of the plant were explained. Those enzymatic processes taking place after the part is removed from the plant to become a drug were especially considered, reference being made to the fact that decided changes usually take place which make the dried drug an individual very different from the living, growing plant. In fact, in Germany and France preparations are now on the market, some even for subcutaneous and intravenous injection, which have been made from drugs in which enzymatic changes were prevented by sterilization. The reason for the fermentation processes which cacao, tea, vanilla, tobacco, etc., are subjected to were taken up and many interesting points brought out.

The resolutions adopted by the National Association of Retail Druggists, protesting against the elimination of whisky and brandy from the forthcoming revised Pharmacopœia, were taken up and discussed by Dr. Julius A. Koch, a member of the Revision Committee, who told in a very interesting manner the various changes of base that the committee had taken on this question from time to time, the last one being the practically even division of the members for and against, with a majority of two favoring deletion. The leaders for and against this action were Dr. H. W. Wiley and George M. Beringer. Each of these champions was satisfied to have whisky and brandy retained, provided his particular brand of standard was accepted, but between the two definitions the contention was finally brought to an end by a vote standing 26 to 24 in favor of deletion. Dr. Koch suggests that no one need worry over there being no standards for these two articles in the Pharmacopœia, as the Agricultural Department and the Internal Revenue Commissioner will see to it that a standard will be provided that producers will be compelled to meet. Dr. Koch also stated that the matter may be taken up by the Committee on National Formulary and a standard for whisky and brandy given in that publication, which is recognized by the courts as authority.

B. E. Pritchard, Secretary.

SAN FRANCISCO

The San Francisco Branch of the American Pharmaceutical Association met on Tuesday evening, December 14. President J. L. Lengfeld presided. After the roll-call and the reading of the minutes of the November meeting, the following committees were appointed: Membership, Miss C. M. Roehr, chairman; Education and Legislative, Dr. A. Schneider, chairman. A Welfare Committee, to consist of five members, will be appointed later. Mr. W. D. Bost was unanimously elected second vice-president.

The review of current pharmaceutical literature was followed by an interesting paper on the "Standardization of Aromatic Spirit of Ammonia," by Mr. W. D. Bost. The paper was based on an article in the May number of the Bulletin of the California Board of Health, in which it was stated that 100 mils of this preparation should contain 1.97 grammes of ammonia. The paper showed that the correct amount must be 1.93, the difference being due to the specific gravity of ammonia water, which had been taken as 1. The preparation, even when kept under the best conditions, showed a deterioriation of about 12 percent in six months.

Mr. C. S. Smith read a paper on "Service in the Prescription Department," in which it was stated that the prescription department could be made as profitable as any other, but it required the best of materials and strict attention to the most minute details. Both contributors were formally thanked by the Branch.

The January meeting will be held on the evening of the 11th, in the office of the Pacific Pharmacist. A demonstration of "Package Finishing" will be given by President Lengfeld. A large attendance is expected.

CLARISSA M. ROEHR, Secretary.

BALTIMORE

A joint meeting of the Baltimore Branch American Pharmaceutical Association and Baltimore Retail Druggists' Association was held in the mezzanine room at the Emerson Hotel, Monday evening, December 13, 1915.

The Joint Committee had been fortunate in securing two unusually able speakers, men who are thoroughly conversant with the subjects they discussed. The subjects and speakers were: "Profitable Advertising for the Retail Druggist," Mr. J. Thomas Lyons, assistant advertising manager of the Baltimore News; "Modern Business Efficiency in the Retail Drug Business," Mr. Douglass Burnett, commercial manager of the Consolidated Gas and Electric Company.

Pharmacy, from the strictly ethical viewpoint, was not considered at the meeting, but the retail drug business and conditions in it were gone into from the standpoint of advertising and efficiency in a thoroughly scientific manner by two men entirely outside of the pale of pharmacy, but experts in their lines. It was a revelation to the many present at the large gathering to see, from the other side of the counter, how their methods of doing business were considered, and to be told what they should and should not do in order to not only be successful but also to even make a living out of their calling.

Mr. Lee Williamson, the president of the Retail Druggists' Association, presided and called on Mr. Neill, the chairman of the Executive Committee of the Branch, to sit with him, and he, in turn, requested Dr. Hynson to do this, as he was the one who had been instrumental in bringing about the joint meeting and had secured the speakers.

Dr. Hynson acted for the Branch and introduced "Tommy Lyons" as the man who had put "Truth" in advertising and who, he said, was not nearly as youthful as his appearance seemed to indicate, for he had known him in the advertising line for at least twenty years, and then said so many complimentary things about him that Mr. Lyons was almost overwhelmed and opened his talk by remarking that in all his career in public speaking he had never received such an introduction or such a start-off and was afraid he would not live up to our expectations. We were then treated to a mildly "Dutch Uncle" talk by a bright Irishman, and from among the many pertinent things said by Mr. Lyons that are applicable to druggists the following have been picked out:

"Most druggists have arrived at the wrong conclusion as to the meaning of advertising, as they seem to think that it represents newspaper space, bill-boards, street-car signs and kindred other publicity mediums, while advertising actually is being done all the time and in our every action and word, and it is the intimate personal advertising that counts immensely for good or bad with the public."

"A nickel spent for a shoe-shine, a dime spent with a laundryman, a quarter spent with a barber, and a half dollar spent with a manicurist could all be charged to good advertising by the average druggist."

"A few dollars spent for paint and better lighting could also be so charged."

"Newspaper advertisements for down-town stores are desirable, but are not a good investment for the neighborhood store."

"Store atmosphere is an important advertisement; go outside, come in, and look at this from the viewpoint of the stranger who comes in contact with it for the first time."

"Would you trade at a store where you were treated like you treat your customers?"

"Find the defects in the store and windows and make them perfect."

A case was cited of a druggist who was playing checkers behind the prescription case with a travelling salesman, who called his attention to the entry of a prospective customer. "Keep quiet, he might go out," was the druggist's response, and he did go out. "Prompt and efficient service is the best kind of advertisement; do not let the customer go out without getting it."

"A druggist complained because a Greek was opening a brightly-lighted, clean, and cheerful candy, fruit, and soda stand on the opposite corner, and he was afraid he would lose his candy and soda trade. He not only lost that part of it, but he also had to close his store, when the proper use of paint and lighting fixtures would have caused the Greek to have moved elsewhere or even may have prevented him from opening at all."

"In an effort to get more business to offset the forty percent loss in prescription business which has occurred in the past years, druggists have resorted to cutting prices on patents, and the temporary advantage which the first cutter might have enjoyed was lost immediately after the next cutter appeared."

"*Cutting chokes the outlet,* especially as applied to the one-cent sales. Two tubes of shaving cream bought for twenty-six cents do not increase the consumption of shaving cream; it merely chokes the outlet for it till both tubes are used, and the buyer is the only gainer."

Mr. Burnett's talk was along the lines of efficiency as applied to retail business, but particular attention was called to the lack of comprehensive systems of bookkeeping on the part of druggists and their lack of knowledge as to the proportion of profit or loss to cost, and their inability to determine just what proportion of profit it was necessary to get in order to do business properly.

The lack of a community spirit among druggists by means of which they could get together and stop price cutting, cut off worthless accounts, and stop living off each other was emphasized, and it was hoped that some plan along the lines of the Stevens bill could be worked out.

Much emphasis was put on the turn-over, and it was announced that unless this could be done twelve times a year something was wrong.

In the discussion it was brought out that already the National Association of Wholesale Druggists has taken steps to discourage the opening of new stores in localities already served by existing ones, by refusing credit, and considerable blame was attached to it for having encouraged this too much in the past.

It was also noted that they were taking steps to see that proper books were kept by the retailers for their mutual protection.

One druggist brought out very forcibly a good salesmanship practice by stating that when a customer called for an article of which there were two sizes, he invariably wrapped up the larger, unless the smaller was asked for, and even then the larger size was often taken when its economy was pointed out.

Another druggist claimed that the only things which should be sold at cost were postal cards and postage stamps; that the decision should be made that they were or were not to be sold, and that if they were sold they should be sold with a smile and in liberal quantities, so that stamp customers would become regular ones for other lines.

He also brought out the inconsistency of having an ancient city directory on hand, and advocated the last edition or none at all.

WM. J. LOWRY, JR., Secretary.

CHICAGO.

The Chicago Branch of the American Pharmaceutical Association met Tuesday evening, November 16, 1915, with a large audience of pharmacists, physicians, and sanitarians.

Mr. Seward W. Williams presented a paper on "Aerial or Gaseous Disinfection," including a symposium of answers from State health officers to seven questions relating to different phases of the subject.

Mr. Williams began his talk with a definition of the term gaseous disinfection, and gave a short history of the methods employed and substances used for the purpose, and then brought up the question of the value of such disinfection. He presented a letter from Dr. Schroeder, of the New York City Department of Health, explaining why the practice of fumigation after infectious diseases had been so nearly discontinued in New York City and the means now employed to prevent the spread of contagion.

In the symposium replies were had from the health officers of nearly all the states and larger cities, as well as from many men of national reputation as sanitarians.

The seven questions and a summary of the replies are as follows:

1. After what diseases do you think it desirable to fumigate?

Replies to No. 1 may be classified as follows: Favorable to fumigation, 19; partly favorable, 3; unfavorable, 5; doubtful, 3.

2. Do you regard formaldehyde as the

most satisfactory aerial disinfectant? If not, what, in your opinion, is better?

Summary for No. 2: 28 regard formaldehyde as the best gaseous germicide, 2 qualify their approval.

3. Do you think the conclusions reached by Mr. Adams in the Ladies' Home Journal for March (see quotation following) justified?

This was the quotation:

> I am assuming, in what follows, only two points: That you are an adult, and a non-consumptive at present. On that hypothesis:
>
> 1. You have had tuberculosis.
> 2. You have cured yourself of it.
> 3. In the process of curing yourself you have so fortified your body against it that you are safe against "catching" the disease from any other person.
> 4. If you now become a consumptive it will be through a relapse and by your own fault.

Summary for No. 3: Favorable to Mr. Adams's views, 5; partly favorable, 3; unfavorable, 12; doubtful, 5.

4. Even if this new theory of tuberculosis were generally accepted, would it not point to the necessity of fumigation after pulmonary phthisis to protect children?

As nearly as replies to No. 4 can be classified, 17 may be called affirmative, 5 negative, and 8 doubtful.

5. Have you, in your experience, thoroughly satisfied yourself as to whether or not communicable diseases are commonly conveyed by objects handled by the patient? In other words, what rôle do fomites play in carrying infection?

Summary for No. 5: 15 regard fomites as of considerable importance in conveying infection, 7 consider them of secondary importance, but not to be neglected, and 8 regard them as not worth considering.

6. How is it that some sanitarians, who advise burning books handled by a person having a contagious disease, regard the fomite theory, as applied to things generally, so lightly that they do not fumigate the room and its contents?

Nearly all seem to agree that the position referred to is inconsistent.

7. Is not the viability of pathogenic bacteria so influenced by deficiency of light and fresh air, and so affected by atmospheric conditions in general, as to make it unwise to rely upon disease germs shortly succumbing to conditions practically unattainable without fumigation?

Twenty favor fumigation in addition to fresh air and sunshine; three emphasize the value of germicidal solutions; three regard fumigation as of practically no value, and four are doubtful.

Mr. Williams then discussed the logic of gaseous disinfection and its importance. He presented the relative values of formaldehyde and sulphur and their particular uses.

In conclusion he stated:

"A large majority of the state health officers, joining in the symposium, favor a continuance of formaldehyde gas disinfection.

"We should not neglect one cause of spreading communicable diseases (room infection) because we have found another (carriers), whatever the relative importance of the two agencies may be.

"To destroy bacteria, volatilize formaldehyde, without ignition, in warm, moist air.

"To kill insects and vermin, burn sulphur in dry air.

"While, as pharmacists, we should supply trustworthy means for combating communicable diseases, as citizens we should look for their underlying causes and assist in correcting them."

In the discussion that followed the paper Mr. Hugh Craig said: "Slowly but surely public sanitation is changing from a political to a scientific foundation, and every city should have, and will soon have, professionally-trained and well-paid health officers."

Dr. Bernard Fantus called attention to the increasing knowledge regarding the spread of disease by "carriers," and to the fact that clothing and other objects were now known to play so small a part in conveying disease. In fact, the great majority of infections could be directly traced to contact with another person bearing the disease germs.

Dr. R. E. Humphreys then introduced the subject of white mineral oil as a remedy for constipation, and presented a strong argument for the American oil as against the Russian. He said that, whereas the Russian oil consists chemically of members of the naphthalene series, the American oil from the eastern and central states consists entirely of members of the paraffin series, and the California oil is a mixture of the two series. He stated that the Russian oil was somewhat more viscous, its specific gravity ranging from 0.875 to 0.885, while the American oils ranged from 0.850 to 0.865. He discussed the tests for unsaturated and compound hydrocarbons, and explained why some of these tests were too harsh, and that it was unnecessary for a very good grade of paraffin oil to meet them.

Mr. C. H. Briggs followed Dr. Humphreys and stated that all that was essential for a perfect medicinal mineral oil is that it be bland and tasteless, colorless, medium viscous (not as viscous as the Russian oil, which is almost as thick as castor oil, but not so thin as to favor "leakage"), and be free from unsaturated hydrocarbons. He favored the bromine test for detecting these undesirable hydrocarbons as more reliable than the sulphuric acid test.

E. N. Gathercoal, Secretary.

The Chicago Branch of the American Pharmaceutical Association held the December meeting at the College of Pharmacy Building the evening of the 14th, with President Hugh Craig in the chair.

Secretary Gathercoal read a short paper on proposed changes in the Year Book of the Association. He especially urged that some means be adopted by which pharmaceutical abstracts could be presented within a short time after the publication of the original articles. He suggested that the Year Book could be published in instalments during the year, which could be mailed either as supplements to the Journal of the Association or as a separate publication. The paper was discussed, but finally referred to the next meeting for action.

The principal feature of the evening was an illustrated talk by President Craig on "Window Dressing." Mr. Craig classified dressed windows, stating that the most attractive windows were those in which live animals were displayed; next most attractive, those in which some mechanical wonder was in operation; then followed the artistic display, including especially landscapes; the ornate display, including richly-furnished interiors, and the specialty display, in which but one article was exhibited; least attractive was the 5-and-10-cent-store display, in which a great variety of articles were massed.

He stated, however, that the appearance of many Chicago drug-store windows indicated no attempt at any display, and that this waste of the most valuable selling agency in the store was most unfortunate.

The lantern views were instructive and interesting, showing not only different types of window displays, but some of the devices and apparatus used in making displays.

E. N. Gathercoal, Secretary.

DETROIT.

The meeting of the Detroit Branch of the American Pharmaceutical Association was held Friday evening, November 19, at the Wayne County Medical Society Building.

The program consisted of two papers on drug store advertising. The first was by Mrs. Margaret R. Burlingame, an expert on advertising.

Mrs. Burlingame's talk was intended to give something definitely tangible. Too often advertising talks are based on "theory," which to the lay mind is interesting from the standpoint of talk, but confusing as to any practical value. Mrs. Burlingame opened her remarks by seemingly apologizing for the lack of the theory of advertising that her talk would contain, but in reality gently rapping over the knuckles the fellows who spend much valuable time talking "theory."

"You know," she quietly suggested, "the real advertising man—the one who turns out the ideas that build business—hasn't any time to *talk* advertising—he's too busy advertising."

"When you listen to a long discussion on the theory of advertising you may say this to yourself: 'That chap is paid for *talking*'—and the more interestingly he talks, and the more often he talks, the more you can add to the amount he gets paid.

"The real advertising man—not the man who sells the agency's service—but the *real* advertising man, must be three things. He must be an analyst, a psychologist, a merchandiser.

"He must be able to tear to pieces your product, your market, and your price; and he must be able to build up again; he must know people. This is very important. He must be able to tell you how the people you want to reach think—how they act. He must be able to tell you how to reach these people, and how to make them act; how to create in them a buying desire, and how to connect that buying desire with your particular product. . . .

"Before you, as retailers, start an advertising campaign, you must answer two all-important questions—'What have I to sell?' and 'To whom am I going to sell it?' Then you must start about to find out the very best ways of selling your product.

"You may think you are selling drugs, when in reality you are selling *service*. Let me give you an example. You are all more or less familiar with the advertising the Schettler Pharmacies have been doing. You might think Mr. Schettler is selling drugs just the same as any drug store, no matter where it is located. But you are wrong. Mr. Schettler sells Service, and sells it with a big S. When we were called in to plan his advertising we searched for something that was different in his plan that could be exploited. We hit upon the idea of making people see a difference between 'Drug Store' and 'Pharmacy,' and we taught them this difference: The drug store as a place where goods were sold, including drugs; the pharmacy where nothing but drugs and high-grade toilet articles were sold. Then we talked service in prescriptions, until we got people where they not only felt absolutely safe in having a Schettler Pharmacy compound their prescriptions, but unsafe unless they did it.

"Please understand that this does not mean that we cornered all the prescription business in Detroit—we didn't spend enough money to do that—but we did show a wonderful increase, and that increase still remains.

"There is a peculiar thing about a pharmacy that specializes in prescription work. Before ever that pharmacy sells a single drug it must first sell *confidence*. And in selling confidence it must exploit its high-grade prescription clerks, its chemists, its pure drugs, its prompt service. So you can see my statement is correct when I say that Service, not drugs, is the thing that is sold.

"And, too, this will show you how necessary it is to ask yourself: 'What am I going to sell?' The second question is equally important in its relation to results: 'To whom am I going to sell it?'

"You would quickly agree that it would be an absurd piece of not only supposed advertising, but common sense, to advertise fur coats in Florida; and yet, so far as results are concerned, the way some advertisers ignore an analysis of their markets is just as absurd. If you are selling prices, don't advertise to high-priced trade. The cut price always gives rise to a doubt in certain mentalities. They are very apt to ask: 'What is the matter with the stuff?' If you are advertising quality and service, you can make your appeal general, but select the mediums that go to the better classes. . . ."

Mrs. Burlingame was interrupted by the question: "When a woman goes into a store and throws down a quarter for a box of laxative bromo-quinine pills, and the clerk hands her back 6 cents, is she pleased—or what is the effect on her?"

"Most emphatically *not!* And right here is the mistake some manufacturers make in merchandising. Into that woman's mind immediately pops the disturbing question: 'I wonder what's *wrong* with them?'—and never again is she quite satisfied. Don't forget this—a woman may shop for prices on certain established articles—we will say of wearing apparel, or of green market goods that she knows are all right—but when it comes to putting *cheap* things into the stomachs of her family, her shopping stops. She doesn't care to take any chances with her children's health; and the very fact that she doesn't know what's in the stuff makes her all the more insecure."

"Then," she was asked, "you do not believe in cut prices?"

"Cut prices have established for themselves a certain place, but I maintain that they are so unnecessary—and they represent in many instances poor merchandising. Why hand back a woman six cents and place in her thought a distrust of you and the article forever after? I'll warrant you that that same woman doesn't go to the cut-rate place for her prescriptions—she wouldn't dare!"

"But what about the case of Horlick's Malted Milk and similar products—won't she shop for them?"

"That is a different case. In the example of Horlick's Malted Milk and many other nationally-advertised articles the matter has been taken out of the retailer's hands—she isn't buying from him at all, so far as her mental processes are concerned—she is buying from the manufacturer. He has already sold her that *confidence* that I have mentioned previously. It *has* to be sold some time, gentlemen—and it is the biggest asset any business can have. It is, incidentally, one of the things the cut-rate man sacrifices for his bulk."

The questions of samples, demonstrations, neighborhood advertising, circularizing, and newspaper advertising were also discussed.

Although Mrs. Burlingame had been asked

to speak twenty minutes, she was kept answering questions until almost the close of the meeting.

The next paper was read by Mr. Leacock, a prominent Detroit pharmacist, describing various advertising methods which he found valuable in his stores.

A discussion followed, in which many interesting points were brought out.

A. A. **Wheeler**, Secretary.

The December meeting of the Detroit Branch of the American Pharmaceutical Association was held at the Wayne County Medical Society Building, Friday, December 17. President Scoville being absent, on account of sickness, Ex-president William A. Hall called the meeting to order, thirty-one being present.

On motion of Mr. Rohnert, it was voted that a resolution of regret be passed that Mr. Scoville could not be present.

The first speaker was State Drug Inspector Jones.

In his talk Mr. Jones gave a very interesting description of the work which is taken up by his department. One point noted was the fact that they are not working with the object in mind of convicting all offenders, but rather to show them their shortcomings, so that they may correct them.

On motion of Mr. Webster, it was voted that we commend the work of Drug Inspector Jones and of the State Dairy and Food Department to maintain proper standards of drugs, chemicals, and preparations, appreciating the importance of this work in its relation to the public health of our community, and pledge our coöperation wherever it may assist the department.

The next paper was by Dr. Bunting, of the University of Michigan, on the subject of "Dentifrices."

A. A. **Wheeler**, Secretary.

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held Monday, December 13, 1915, at the Medico-Chirurgical College.

President Henry called the meeting to order at 8:30 P.M., and, there being no new or unfinished business, the program of the evening was at once taken up. Professor Henry Kraemer read a paper on "Progress in the Cultivation of Medicinal Plants."

Dr. George E. Pfahler, röntgenologist of the Medico-Chirurgical College, presented "The Röntgen Rays in Diagnosis and Treatment," followed by a demonstration with radium and Röntgen rays in his laboratory at the Medico-Chirurgical Hospital.

The contributors to the evening's program were given a standing vote of thanks, and the meeting adjourned.

J. Ed. **Brewer**, Secretary.

CITY OF WASHINGTON.

The November meeting of the above organization was held Wednesday, November 24, 1915, and the paper of the evening was presented by Mr. M. I. Wilbert, on the Report of the Commission on Proprietary Medicines of the American Pharmaceutical Association.

He pointed out that this commission was organized at the Nashville meeting in 1913; that a preliminary report was presented at the Detroit meeting in 1914, and that a report of much value along rather conservative lines had been presented and agreed upon at the San Francisco meeting in 1915. It contained ten declarations of minimum requirements, all of which are good, but he considered that they do not reach the crux of the situation, as all of them relate to proprietary remedies only from the pharmacist's standpoint. It contains nothing whatever from the broad viewpoint of the public health.

The commercial phase and that of the public health being so diametrically opposed, he pointed out strongly that the report failed to take into consideration the public welfare, and, as a result, the report of the Commission did not go as far as it should have.

He called attention to the fact that on two previous occasions the American Pharmaceutical Association had considered this same question, and that the masterly report of the special committee, consisting of Messrs. Rice, Hoffman, and Prescott, which was adopted by the Association in 1885, should be further considered and the recommendations contained therein should be carried out.

The data presented along the same lines at the meeting of the National Wholesale Druggists' Association in 1915 by Mr. Hover were most interesting, showing, from carefully-compiled statistics, some very remarkable facts: An enormous increase in the number of proprietary remedies in twenty years; in 1905 the number of remedies listed in the Druggists' Circular price-list was 28,478, while in 1915 it was 38,143. Previous to the "Food and Drugs Act" 53 percent of the wholesale drug business consisted of proprietary remedies; at present it is somewhat less, going to show that this law has had some beneficial effect. The average sales by wholesale druggists of proprietary preparations at the present time are in lots of a quarter dozen, whereas previous to the "Food and Drugs Act" the sales were much larger and frequently from one to five gross. The report of the Commission was considered and endorsed by the Wholesale Association, with the exception of Article VIII.

He likewise called attention to the fact that the Executive Committee of the Proprietary Association had endorsed the report of the Commission.

In considering this report of the Commission, it was interesting to compare the report of the British Government in handling the same question. This report is much at variance with the conclusions arrived at by the Commission and contains much that is not correct.

The Canadian Government requires the filing with the proper officials of the potent ingredients of all proprietary remedies and receiving a license before same can be offered for sale. The New York and Louisiana Boards of Health now require the filing of the potent ingredients of all remedies offered for sale in the respective jurisdiction. Mr. Wilbert characterized such legislation as vicious and open to many serious objections, one of which is the possibility of blackmail. He considered the proper method would be to require a plain statement on the label of all active or possibly harmful constituents, on the ground that the public, when they dose themselves, should know what they are taking or be in a position that they could be readily advised. In this connection a recent enactment in the State of Nebraska is interesting, for the reason that it affords protection to all animals except man. The act is as follows:

"Section 1. *Live Stock—Remedy Defined.*—The term 'live stock remedy' as used in this act shall be held to include all condimental feed, medicated stock foods, medicinal stock foods, stock food tonics, stock powders, proprietary medicines, or any preparation of like nature designed for any animal except man, and administered internally for the stimulating, invigorating, curative, or other powers. *Provided,* That this shall not be held to include proprietary medicines designed primarily for man but used occasionally for live stock or poultry."

Mr. Wilbert closed his paper by offering the following resolutions:

"WHEREAS, All medicines concern the health of those who use them; and

"WHEREAS, The purchaser of a medicine selected by himself has the right to receive information of its constituents and their quantities; and

"WHEREAS, The report and the draft regulating the sale of proprietary medicines, which was accepted by the American Pharmaceutical Association at its meeting held in Pittsburgh, Pa., in September, 1885 (Proc. Am. Pharm. Assoc., 1885, vol. 33, pp. 394–398), embrace a method whereby the above-mentioned objects may be secured; therefore be it

"*Resolved,* That we, the members of the City of Washington Branch of the American Pharmaceutical Association, recommend that the Commission on Proprietary Medicines insist that manufacturers be required to announce on the labels of all package medicines and toilet preparations the kind and the amount of the active or possibly harmful constituents contained therein."

After considerable discussion, that was participated in by Drs. Wiley and Kalusowski, and Messrs. Fuller, Flemer, Richardson, Wilbert, Hilton, and others, the resolutions were unanimously adopted, and the Secretary directed to forward same to the Journal.

S. L. HILTON, Secretary.

The December meeting of the above-named organization was held at the National College of Pharmacy, Wednesday, December 29, 1915, and the subject of the evening was the "Stevens Bill and Price Maintenance," by Mr. J. Leyden White.

Mr. White presented an elegant paper and discussed the Stevens Bill and the endeavors of trade organizations looking to price maintenance during the past twenty years. He pointed out that the first work along these lines was done by the druggist, and that the birth of one of the national drug organizations was directly due to this work.

He showed what organizations had endorsed the bill—and they are many—and further cited that many felt that the enactment of the Stevens Bill, now known as the

Ayres-Stevenson Bill, was the best proposition thus far offered and would to a large extent afford protection to the small merchant.

The paper brought about a spirited discussion, and it was pointed out by several that the weak feature of the bill was that it contained no provision whereby the giving away of any article as a prize with each sale of merchandise was prohibited or could be stopped, and that this feature would likely cause much more demoralization than what we have at present. It was also pointed out that the provisions of the bill applied only to trade-marked goods, whereas, as a matter of fact, there are to-day but few trade-marked goods on the market, the majority being trade-name goods, and that nothing contained in the bill would give any protection whatever, as this class of goods would not come under its protection. Trade-name goods are in no manner protected.

The organization, by vote, endorsed the principle of the bill unanimously, but felt that many changes would have to be made to afford the small merchant any relief.

The following officers were elected for the ensuing year: H. E. Kalusowski, president; H. B. Floyd, first vice-president; W. W. Stockberger, second vice-president; S. L. Hilton, secretary; W. S. Richardson, treasurer.

After extending a rising vote of thanks to Mr. White, the Branch adjourned, to meet the last Wednesday in January.

S. L. Hilton, Secretary.

THE POSTOFFICE DEPARTMENT CONTEMPLATES NO CHANGE IN THE REGULATIONS PROHIBITING THE ADMISSION OF POISONS TO THE MAILS.

The following correspondence explains itself:

December 27, 1915.

Hon. Postmaster-General,
Washington, D. C.

Sir:

I have the honor to inform you that the National Drug Trade Conference, at its annual meeting held in Washington, D. C., December 16, 1915, unanimously adopted the following resolution offered by Mr. Chas. A. West:

"*Resolved*, That the Conference reaffirm the resolution respecting the mailing of medicines containing poisons in medicinal doses passed at the last annual meeting of the Conference."

The resolution in question reads as follows:

"*Resolved*, That the National Drug Trade Conference hereby renews the representations and recommendations it has made in the past respecting the mailing of medicines containing poisons not outwardly or of their own force dangerous, and urges upon the Postmaster-General the necessity of immediately promulgating a regulation in accordance with the letter and spirit of Section 217 of the United States Criminal Code, that will permit of the economical and prompt distribution of some of the most valuable medicinal agents which are now denied the mails, and for the lack of which, in the hands of the medical profession and drug trade, particularly in small places, inaccessible to express offices, human health and even life is often imperilled."

Trusting that the drug trade of the country may soon have some substantial remedy respecting the mailing of medicinal preparations containing poisons in medicinal doses, I remain,

Yours respectfully,
(Signed) Chas. M. Woodruff,
Secretary.

January 7, 1916.

Mr. Charles M. Woodruff, Secretary,
National Drug Trade Conference,
475 East Grand Boulevard, Detroit, Mich.

Sir:

In answer to your letter of December 27, containing copy of resolution adopted by the National Drug Trade Conference at its annual meeting held in Washington, D. C., December 16, 1915, recommending modification of the Postal Laws and Regulations relating to the mailing of poisons, I beg to say that the Department contemplates no change in the Regulations prohibiting the admission of poisons to the mails.

Respectfully,
(Signed) A. A. Fisher,
Acting Second Assistant Postmaster-General.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

CORRECTION OF THE MINUTES OF SAN FRANCISCO MEETING.

Mr. Fred I. Lackenbach writes General Secretary William B. Day that the discussions in the Section of Education and Legislation relating to the report of the Committee on Patents and Trade-marks were participated in by him, and were credited to Mr. G. H. P. Lichthardt; also, in the abstracts prepared for the Scientific Section, the name of Mr. J. W. England was erroneously given for that of Dr. H. Engelhardt. We are glad to make the corrections; they are ascribable to the transcripts of the minutes, these being printed according to the copy furnished the Journal.

A CORRECTION.

In reading the report of the secretary of the Section on Education and Legislation which appears in the November number of this Journal the following correction will please be taken into consideration:

University of Tennessee School of Pharmacy should be classified with those schools which require three years of high-school work as an entrance requirement to the pharmaceutical graduate course and four years of high-school work for the pharmaceutical chemistry course.

R. A. KUEVER, Secretary.

THE PRODUCTION OF NITROGEN.

Great stress is laid upon the necessity of "cheap" water power as an essential for the production of nitrogen from air. While this is true, there is a misconception of why this is necessary, and that water-power, like everything else, has a relative value. The reason why the atmospheric nitrogen process is little used in this country is because other manufacturing industries, utilizing water-power, can afford to pay a higher price for it. For this reason the logical point for obtaining nitrogen from air is where the available water-power is too remote from points where it can be profitably adopted by other industries. In other words, water-power is only commercially important in the recovery of nitrogen when it really offers a "cheaper" means of production.

The coke-oven plants will very likely continue to be the source of our nitrates, and, with the increasing interest in related manufacturing, offers the more economical method and a nearly inexhaustible source of supply. The very fact of being remote, however, presents the commercially important factor of possible high transportation rates, which more than likely would offset the advantages of low production cost.

THE PREVALENCE OF "GRIP."

Not since 1903 has the dreaded grip been so prevalent as during the past month. Dr. William Osler defined the grip as a pandemic disease, appearing at irregular intervals, characterized by extraordinary rapidity of extension and a large number of people attacked.

Usually the affliction has spread from section to section; this year it seems to have appeared in localities between which distances intervened, and newspaper accounts from all sections of the country report a prevalence of this highly contagious disease in its various forms. The most common form is that evidenced by inflammation of the mucous membrane of the nose and throat, and which has developed the large number of bronchitis cases in many of the cities. Another form that is quite general, and possibly has claimed most victims, is that characterized by a high degree of fever and which, from lack of attention, has contributed an alarming number of pneumonia patients. A less prevalent form is that accompanied by gastro-intestinal disturbances.

In quite a number of the larger cities, stores and factories have been seriously handicapped by the prevailing scourge. The

New York Board of Health at once started an educational campaign, and one of the main mediums utilized for conveying this information is the public school system. Pamphlets, book-marks, etc., are given to the children, who carry them to their homes. The literature presents old thoughts with new admonitions and deductions; for examples:

> "Cover up each cough or sneeze,
> If you don't you'll spread disease."

"Walk a mile in the open air twice a day. It will add ten years to your life; if you don't believe it, try it and see."

"You can't overdose yourself with fresh air, and disease germs can't endure it."

Drug-store windows evidence that we have with us again the Russian product with a French appellation.

ONE HUNDREDTH ANNIVERSARY.

The completion of one hundred years in business is announced by Adam Pfromm and Co., wholesale druggists of Philadelphia. The firm was founded in 1815 by Thomas Wiltberger.

HERMANN HAGER-ABEND.

The New York Deutscher Apotheker Verein devoted its last monthly meeting on January 6 to a celebration of the centenary of Dr. Hermann Hager's birth. The program of addresses included the following: The Life of Hager, by Emil Roller; Hager as a Pharmaceutical Writer, by Otto Raubenheimer; Hager as a Chemist, by Dr. Friedrich Klein; Reminiscences of Hager, by Dr. Gustav Drobegg.

OBITUARY

HENRY M. BILLINGS.

1832–1915.

Henry M. Billings, a member of the American Pharmaceutical Association for forty-six years (joined 1869), died on October 13, 1915.

Henry Merry Billings,

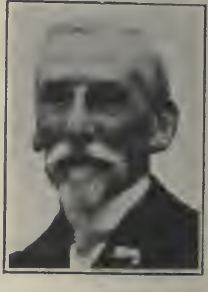
the son of Ebenezer and Mary D. Billings, was born in Boston, Mass., July 21, 1832, and educated in the Brimmer School of that city.

He entered the drug business with his brother, Samuel Janes Billings, who was then conducting a drug store at Great Falls, N. H., and completed his pharmaceutical education with Joseph T. Brown, whose store was located at Washington and Bedford Streets, Boston.

In 1858, when twenty-six years of age, he connected himself with John A. Tarrant & Co., at Greenwich and Warren Streets, New York, in which firm his brother, Samuel J. Billings, had become a partner, but only remained a short time before accepting a position with Thomas Daniels in Toledo, Ohio.

In 1862 he re-entered the employ of the Tarrant concern in New York City, which had meanwhile been incorporated (1861) under the name of Tarrant & Co. Mr. Billings was made superintendent of the company in 1863 and elected to its presidency in 1867, continuing to act as president and superintendent until his resignation in 1879. He retained an interest in the company, however, until 1892, when he finally retired from active business.

Mr. Billings, while never in robust health, was an energetic worker along conservative lines. Under his able administration the Tarrant business expanded in all directions; when he assumed its management in 1863 it was a comparatively small retail concern, with a limited sale for the Tarrant specialties, which had been originated by James Tarrant, the founder of the business in 1844; when he resigned from active service in 1879 Tarrant & Co. was recognized as one of the leading jobbing drug houses on the west side of New York City, while the Tarrant specialties, under the system of advertising originated by him, had grown until Tarrant's Seltzer-Aperient, the leading specialty, had become one of the largest selling household remedies in the United States and had been successfully introduced into many foreign countries.



Mr. Billings, while a strict business man, had a kind and genial disposition; he was a just and considerate employer, a good neighbor and citizen, a devoted husband, a faithful friend, and was highly esteemed by all those who came in contact with him in business or family life, in church or social circles.

In 1860 he married Miss Ellen F. Andrews, of Hingham, Mass., who survives him.

Shortly after taking up his residence in New York, he became a member of the Church of the Messiah, and was thereafter closely identified with its charitable and educational work until his decease.

Mr. Billings was a great lover of Nature; the open country, the trees, the birds, the flowers appealed to him. For many years he left his New York residence early in June for South Poland, Maine, which he made his summer home, and here, amid the scenes he loved so well and surrounded by appreciative friends, he died on October 13, 1915. The interment was in the family lot at Hingham, Mass.

T. F. M.

HENRY HEIM.

Henry Heim died at his home in Saginaw, Mich., on December 19, 1915. He was born in Saginaw in 1857, in a log house which stood on the site of the building where he and his brother William conducted a drug store for over twenty years, at the corner of Janes Avenue and Third Street. He was a member of the Board of Education for several terms, and gave valuable service to the public school system, especially kindergarten work. He was twice appointed a member of the Michigan State Board of Pharmacy. He became a member of the American Pharmaceutical Association in 1900. He was a member of the Germania Lodge. F. and A. M., and East Side Arbeiter societies. He is survived by his wife, Hannah Hutzel Heim, two daughters, and two sons.

J. W. E.

ANTON VORISEK.

Anton Vorisek died on December 2, 1915, after a brief illness, from pneumonia. He was born in 1872, in Bohemia. He received his pharmaceutical education in the New York College of Pharmacy, graduating in 1898, with the degree of Ph.G., and winning the bronze medal. In 1902 he received the degree of Phar.D.

Mr. Vorisek served throughout the Spanish-American War as pharmacist in the navy. Later he was made an instructor in pharmacy in the New York College of Pharmacy, and became professor of analytical chemistry in 1907.

Mr. Vorisek was the author of "Vorisek's Analytical Chemistry," and was co-author, with Prof. Virgil Coblentz, of a work on volumetrical analysis.

He became a member of the American Pharmaceutical Association in 1915.

He was married and leaves a wife and two children.

J. W. E.

STEPHEN H. BLACK.

Stephen Henley Black, vice-president of Bauer & Black, of Chicago and New York, died at his home in Chicago on January 4, in his fifty-fourth year.

Mr. Black was born in Clinton, Iowa, in 1861, and since 1875 has been actively connected with the drug trade; first in a retail store in Clinton, afterward in the sales departments of wholesale drug houses in the middle West.

Later Mr. Black became associated with manufacturers of plasters and surgical dressings, and was identified with this industry practically from its beginning in this country.

In 1893 the firm of Bauer & Black was organized in Chicago, Mr. Black becoming secretary and sales manager; and from that time until his last illness he devoted his energies to developing the sales organization of that firm.

THE NATIONAL DRUG TRADE CONFERENCE

The meeting of the National Drug Trade Conference convened in Washington, D. C., December 16, 1915. The following members of the Executive Committee met on the day previous:

J. C. Wallace, New Castle, Pa.; Charles M. Woodruff, Detroit, Mich.; Prof. James H. Beal, Urbana, Ill.; C. Mahlon Kline, Philadelphia, Pa.; Samuel C. Henry, Philadelphia, Pa.; R. C. Stofer, Norwich, N. Y., and Dr. A. R. L. Dohme, Baltimore, Md. The Executive Committee decided to report to the Conference a resolution prepared by Dr. J. H. Beal, Samuel C. Henry, and Charles M. Woodruff, outlining the position of the Conference if the resolutions were adopted with reference to preparations, remedies, and prescriptions; also another resolution that no amendments be now considered by Congress to the Harrison law, and another resolution asking that whisky and brandy be restored to their former place of recognition in the Pharmacopœia.

The following attended the Conference:

Representing the A. Ph. A.: John C. Wallace, New Castle, Pa.; S. L. Hilton, Washington, D. C., and J. H. Beal, Urbana, Ill.

Representing the N. W. D. A.: Charles A. West, Boston, Mass.; C. Mahlon Kline, Philadelphia, Pa.; and George W. Latimer, Columbus, Ohio.

Representing the N. A. R. D.: Samuel C. Henry, Philadelphia, Pa.; James F. Finneran, Boston, Mass., and Frank T. Stone.

Representing the A. A. of Ph. C.: George C. Hall, W. C. Abbott, Chicago, Ill., and R. C. Stofer, Norwich, N. Y.

Representing the N. A. of M. of M. P.: Adolph Rosengarten, Philadelphia, Pa.; Dr. A. R. L. Dohme, Baltimore, Md., and Charles M. Woodruff, Detroit, Mich.

Representing the P. A. of A.: Fred K. Fernald, Elkhardt, Ind.; Philip S. Heuesler, Baltimore, Md., and Harry B. Thompson, Chicago, Ill.

The resolutions of the Executive Committee were adopted and approved of the following statements as expressing the sense of the National Drug Trade Conference respecting T. D. 2213:

"1. That the word 'preparation' as commonly understood and employed in pharmacy is a generic term which includes and covers compositions and mixtures prepared in accordance with the formulas of physicians' prescriptions, as well as those prepared in accordance with the formulas of the United States Pharmacopœia and National Formulary, and that when it is desired to distinguish between the preparation of these two classes the term 'magistral' is applied to those which are prepared in accordance with the terms of physicians' prescriptions.

"2. That the word 'remedies' as commonly employed and understood in pharmacy covers and includes all medicinal mixtures and compositions dispensed in accordance with physicians' prescriptions as fully as those prepared in accordance with the formulas of the U. S. P. and N. F.

"3. That the word 'prescription' as commonly employed and understood in pharmacy applies both to the written document issued by the physician and to the article, composition or mixture dispensed in accordance with the directions of such document.

"4. That the word 'dispensing' as commonly employed and understood in pharmacy covers and includes the operation of weighing, measuring and mixing of ingredients and all of the other manipulations involved in the preparing and delivering of preparations in accordance with the terms of physicians' prescriptions.

"Therefore, it is the sense of the National Drug Trade Conference that compositions and mixtures prepared in accordance with the directions of physicians' prescriptions are 'preparations and remedies' clearly within the meaning of section 6 of the Harrison Act, and exempt from the provisions and requirements specified in the remaining sections of said act."

The Conference also adopted a resolution asking that the first paragraph of T. D. 2244 be abrogated as being burdensome to the drug trade and without any effective use in furthering the purposes of the law.

Secretary C. M. Woodruff presented a resolution expressing the sense of the Conference that if any revision and modification of the taxing arrangement under internal revenue laws, by which it is meant with respect to the emergency revenues, that the Conference protests against the continuation of schedule B in such a revised taxing arrangement.

A committee appointed to confer with the officials of the Internal Revenue Bureau, and consisting of Messrs. J. H. Beal, C. M. Woodruff, and Samuel C. Henry, secured the following order from the department:

"Pending consideration of briefs to be submitted by representatives of the drug trade regarding the first paragraph of Treasury Decision No. 2244, which was suspended until January 1, 1916, requiring the quantity of narcotic drug to the ounce, or, if ordered in tablet form, the total number of tablets and the quantity in grains per tablet, to be indicated on official narcotic order forms, you are directed to withhold reporting any person violating this ruling until further advised by this office."

Chairman A. R. L. Dohme reported for the Committee on Patents and Trade-marks, indorsing the so-called Paige bill, with the following proviso: "That no patent shall be granted on any application filed subsequent to the passage of this act upon any drug, medicine, medicinal chemical, coal-tar dyes or colors, or dyes obtained from alizarin, anthracene, carbazol and indigo, or for any process for the preparation thereof for a longer period than five years, unless the patentee or his assigns shall agree that after five years from the granting of said patent he or they will grant a license to any responsible applicant to manufacture said product or use said process upon such terms as may be mutually agreed upon; or in the event of failure to agree within thirty days after such applicant shall apply in writing to such patentee or assignee: then upon such reasonable terms as the Federal Trade Commission may determine at or after a hearing appointed by said commission upon due application and due notice in accordance with such rules and regulations as said commission may prescribe."

This was adopted by the Conference.

An amendment to the Stevens bill was discussed. The Conference decided to secure coöperation with the wholesale organizations in the country with a view to obtaining the assent of the department to an extension of the time for the discontinuance of the guarantee legend or such modifications as would protect outstanding labels.

The Conference went on record as reaffirming a resolution adopted at the session of a year ago, requesting the Postmaster-General to revise and liberalize the postal laws and regulations relating to the transmission in the mails of poisons.

The following officers were elected for the ensuing year:

President, John C. Wallace, New Castle, Pa.

First vice-president, Samuel C. Henry, Philadelphia, Pa.

Second vice-president, Wallace C. Abbott, M.D., Chicago, Ill.

Third vice-president, C. M. Kline, Philadelphia, Pa.

Secretary and treasurer, Charles M. Woodruff, Detroit, Mich.

Executive Committee, John C. Wallace, New Castle, Pa.; Charles M. Woodruff, Detroit, Mich.; Prof. James H. Beal, Urbana, Ill.; Geo. W. Latimer, Columbus, Ohio; Samuel C. Henry, Philadelphia, Pa.; R. C. Stofer, Norwich, N. Y.; Dr. A. R. L. Dohme, Baltimore, Md.; James E. Finneran, Boston, Mass.; Fred K. Fernald, Elkhart, Ind.

WAR DEPARTMENT

List of changes of stations covering period ending December 31, 1915, in the cases of Sergeants First Class and Sergeants Hospital Corps.

SERGEANTS FIRST CLASS.

G. Bruno Weber, from Ft. Sheridan, to Ft. Riley.

Thomas P. Davison, from Ft. Dade, to Ft. Sheridan.

Daniel W. Robinson, from Field Hospital Co. No. 6, to the Remount Depot, Ft. Reno.

George E. Vass, from the Remount Depot, Ft. Reno, to Ft. Dade.

Richard F. Hare, from the Transport "Summer," to Ft. Leavenworth.

Hugh R. MacCleery, from Ft. Sam Houston, to Ft. Clark.

Francis W. Wickett, from the Presidio of Monterey, to the Hawaiian Department, on the February transport.

Samuel J. Koon, from Ft. Canby, to the Hawaiian Department, on the February transport.

Milton T. Esterly, from Ft. Winfield Scott, to Ft. Stevens.

Charles C. Young, from Ft. Stevens, to Ft. Sam Houston.

Quentin J. Barker, from the Walter Reed General Hospital, to Ft. Constitution.

Robert R. Linden, from Ft. Constitution, to the Walter Reed General Hospital.

Martin D. Mims, from the Hawaiian Department, to the Presidio of San Francisco.

Wesley E. Crompton, from the 4th Field Artillery Hospital, to Ft. Andrews.

Robert R. Brooks, from Ft. Andrews to the 4th Field Artillery Hospital, Southern Department.

Harry Meade, from the 19th Infantry Hospital, Southern Dept., to Ft. Moultrie.

Legare J. Lamar, from Ft. Moultrie, to the 19th Infantry Hospital, Southern Dept.

Paul E. Wineken, from Ambulance Company No. 6, to the Philippines Department on the February, 1916, transport.

Glen D. Gorton, from Ft. Leavenworth, to the Philippines Department on the January, 1916, transport.

Fred S. Owen, from the Walter Reed General Hospital, to the Philippines Department on the February, 1916, transport.

Ethel H. James, from the Philippines Department, to the Walter Reed General Hospital.

Francis Moore, from the Philippines Department, to Ft. Geo. Wright.

Henry C. Senecal, from the Philippines Department, to Vancouver Barracks.

Everett R. Stevens, from the Philippines Department, to Ft. Worden.

Will G. Butler, from the Philippines Department, to Ft. Mott.

William W. Elcook, from the Philippines Department, to Columbus Barracks.

Charles F. Eble, from the Philippines Department, to Ft. Leavenworth.

Louis J. Pollard, from the Philippines Department, to Ft. Sam Houston.

Fred Luhman, from the Philippines Department, to Ft. Casey.

Reginald E. Taylor, from the Philippines Department, to Ft. Terry.

Edgar O. Greeno, from Ft. Casey, to the 13th Cav. Hospital, Southern Department.

Oscar Burkard, from Ft. Terry, to the 26th Infantry Hospital, Southern Department.

Gabriel Cushman, from the Philippines Department, to the U. S., on furlough.

Nelson A. Hoberg, from the Presidio of San Francisco, to the 20th Infantry Hospital, Southern Department.

John Praneuef, from Ft. Revere, to the Philippines Department on the January, 1916, transport.

William S. Howson, from the Frankford Arsenal, to Ft. Revere.

Robert A. Dickson, from Ft. Riley, to Ft. Sam Houston.

SERGEANTS.

Edgar B. Ernst, from Ft. McDowell, to the Philippines Department.

Cecil A. Milam, from the Cantonment Hospital, Galveston, to Ft. Sam Houston.

Erwin Duntley, from the Cantonment Hospital, Galveston, to the 26th Infantry Hospital, Southern Department.

Neil M. Stewart, from the Cantonment Hospital, Galveston, to Ft. Sam Houston.

James L. Wood, from the Cantonment Hospital, Galveston, to the 17th Infantry Hospital, Southern Department.

Henry Ash, from on duty with the Organized Militia of N. Y., to Ft. Adams.

Louis Kopf, from the Cantonment Hospital, Galveston, to duty with the Organized Militia of N. Y.

John S. Eberly, from the Canal Zone, to Ft. Greble.

Foster Sharp, from Camp E. S. Otis, Canal Zone, to Ft. Williams.

James F. Maxwell, from Camp E. S. Otis, Canal Zone, to Ft. McKinley.

Barney A. Raczunas, from Ft. Michie, to Ft. Terry.

George C. Daily, from Ft. Sheridan, to Ft. Sam Houston.

Philip Bedore, from Ambulance Company No. 1, to Ft. Leavenworth.

Clyde VanHoosier, from the Port of Embarkation, Galveston, to Ft. Sam Houston.

Richard Queen, from the Hawaiian Department, to Ft. Sheridan.

Edmund J. Engle, from Ambulance Company No. 1, to the Hawaiian Department.

Frederick C. Rosser, from the Philippines Department, to Ft. McDowell.

John E. Oberg, from the Philippines Department, to the Presidio of San Francisco.

John McKay, from Jefferson Barracks, to the Philippines Department, on the January transport.

Barney A. Raczunas, from Ft. Terry, to Field Hospital Company No. 6.

Howard S. Robertson, from Ft. Terry, to Field Hospital Company No. 6.

William J. Henry, from Ft. Sam Houston, to the Hawaiian Department, on the January transport.

Arthur L. Swanson, from Brownsville, Texas, to the Hawaiian Department, on the January transport.

William A. Kesselring, from the Hawaiian Department, to Plattsburg Barracks.

Arthur B. Crean, from Plattsburg Barracks, to Brownsville, Texas.

Oscar D. Sugg, from Ft. Strong, to Ambulance Company No. 6.

Fred C. Schultz, from Ft. Andrews, to Ambulance Company No. 6.

Albert C. Calish, from the Presidio of San Francisco, to Ft. Casey.

William J. Mulford, from the Hawaiian Department, to the Letterman General Hospital.

Louis Davidson, from the Hawaiian Department, to Ambulance Company No. 1.

Richard Johnson, from Douglas, Ariz., to accompany the 9th Cavalry to the Philippines Department.

Raymond H. Brookins, from the Letterman General Hospital, to the Philippines Department, on the January transport.

Frank Cassidy, from the Philippines Department, to the Presidio of San Francisco.

Richard H. Bledsoe, from the Philippines Department, to the Pacific Branch U. S. Disciplinary Barracks, Alcatraz, Cal.

George W. Combs, from the Pacific Branch, U. S. Disciplinary Barracks, Alcatraz, Cal., to the 17th Infantry Hospital, Southern Department.

Wheeler W. Johnson, from the Philippines Department, to the U. S., on furlough.

Halbert M. Beasley, from the transport "Kilpatrick," to Ambulance Company No. 6.

Robert G. J. McLurkin, from Ft. Huachuca, to the Philippines Department with the 9th Cavalry.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service, period ending December 15, 1915.

Pharmacist Edward Rogers. Granted 14 days' leave of absence en route to Ellis Island, N. Y. November 10, 1915.

Sanitary Chemist H. P. Corson. Directed to proceed to Grove City, Pa., by way of Cincinnati, Ohio, for duty in connection with studies of industrial wastes. November 13, 1915.

Pharmacist J. V. La Grange. Granted 2 days' leave of absence, December 9–10, 1915. December 8, 1915.

Pharmacist F. S. Goodman. Re-detailed for duty at the Tampa Bay Quarantine Station, effective January 10, 1916. December 14, 1915.

PROMOTIONS.

Pharmacist George I. Van Ness promoted to Pharmacist of the First Class, effective September 19, 1915. December 10, 1915.

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly. The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the Journal unless notice of change of address is received before shipment or mailing.

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From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

A. E. STEVENSON.
From Washington, D. C.
To 1625 Transportation Bldg., Chicago, Ill.

ROBERT S. R. WITTMER.
From Gary, Ind.
To The River Ave. Pharmacy, River Ave., Pittsburgh, Pa.

J. WESTON PRATT.
From 5 Summer St., Quincy, Mass.
To c/o Welsh's Drug Store, Milton, Mass.

C. THURSTON GILBERT, P.D.
From 9th and Asbury Ave., N. J.
To 27 Stevens St., Danbury, Conn.

MATTYS JONGEWARD.
From 154 A St., N. E.
To Bureau of Chemistry, Washington, D. C.

ROBERT L. EVES.
From residence unknown
To 2218 South 12th Ave., Nashville, Tenn.

WM. L. FLAKE.
From Water Valley.
To Canadian, Texas.

ARLIE L. WADDER.
Should be Arlie L. Waddle and is
At 2101 8th Ave., Nashville, Tenn.

E. HALL WEBB.
From residence unknown
To 21st Ave., South and Acklem Sts., Nashville, Tenn.

CLARENCE C. YOUNG.
From residence unknown
To 735 Church St., Nashville Tenn. (former address).

CARL M. DODSON.
From Enid, Oklahoma.
To residence unknown.

GEORGE EISLLE.
From Louisville, Ky.
To Winchester, Ky.

EMIL SCHULZ.
From residence unknown
To Regimental Hospital, 6th Cavalry, Harlingen, Texas.

LOUIS A. JEANCON.
From 1032 E. 97th Ave., Denver, Colo.
To 1025 E. 9th Ave., Denver, Colo.

FRANK S. HERETH.
From 23 Vine St., Brooklyn, N. Y.
To Richmond, Calif.

W. L. MILLER.
From Box 387, Portland, Ore.
To 119 South Anere St., Saginaw, W. S., Mich.

C. P. VALENTINE.
From 1511 Railroad St., Helena, Mont.
To Department Pharmacy, University of Montana, Missoula, Mont.

CHARLES T. A. WITT.
From 195 Exchange St., Rochester, N. Y.
To 1954 W. 4th St., Gravesend, Brooklyn, N. Y.

JOURNAL ANNOUNCEMENTS

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CONRAD LEWIS DIEHL

Twenty-second President of the American Pharmaceutical Association.
For thirty-eight years Reporter on the Progress of Pharmacy.

Prof. C. Lewis Diehl served his nation in its time of need during the Civil War; his faithful services since to his fellows in the pharmaceutical profession have been characterized by a devotion which calls for appreciation and gratitude not only from every member of the American Pharmaceutical Association, but also from the pharmacists and chemists of the world.

J. P. R.

C. LEWIS DIEHL

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. V FEBRUARY, 1916 NO. 2

C. LEWIS DIEHL, PH.M.

Conrad Lewis Diehl, for half a century, almost continuously, Reporter on the Progress of Pharmacy of the American Pharmaceutical Association, was born August 3, 1840, in Neustadt A. H., in the Palatinate (Rhenish Bavaria), the eldest son of Therese Phillipine Rossi and Conrad Lewis Diehl. In 1849 his father came to the United States as a political refugee, and was followed in 1851 by the mother and children. His mother did not live for many months after their arrival, and Lewis, with a brother, entered school at Oakfield Academy, near St. Louis, while the other children were distributed among relatives in Europe.

In April, 1854, he left school permanently and joined his father in Philadelphia, securing a position with R. and G. A. Wright, perfumers (druggists' sundrymen), in whose employ he remained till 1857. In 1858 he engaged to serve a four years' apprenticeship with Dr. John R. Angney, of Spruce and Fifth Streets, meanwhile attending the Philadelphia College of Pharmacy, from which institution he graduated in 1862. To become acquainted with German pharmacy he accepted a position with Emilius Herwig, of Fifth and Brown Streets, but on being transferred, several months later, as manager to a branch store, he severed connections and entered the employ of John Wyeth and Brother, who were then about to fit out a laboratory to engage extensively in the manufacture of pharmaceutical preparations. He remained in charge of this laboratory until August, 1862, when he enlisted in the 15th Regiment of Pennsylvania Volunteer Cavalry. On being wounded at the battle of Stone River he was discharged, and, after convalescence, obtained the position of assistant chemist in the United States Army Laboratory of Philadelphia, remaining from April, 1863, to January, 1865, and gathering excellent experience in the manufacture of numerous chemicals.

Contemplating the purchase or opening of a pharmacy in Chicago, and with the object of familiarizing himself with the business there, he accepted a position with Ernst George Mueller, but soon engaged in the more congenial work of manufacturing chemicals in the laboratory of Bender, Mahla & Co. (afterwards Mahla & Chappel), remaining there till July, 1865, when he accepted an offer in Louisville to reorganize and manage the Louisville Chemical Works. He remained in charge of this concern till December, 1868.

In June, 1869, he purchased a drug store in Louisville (his wife's home), at the corner of First and Walnut Streets, and in August, 1874, he opened a new store at the corner of Third Avenue and Broadway, where he continued successfully till November, 1903.

The professional side of his career began with the contribution of a paper on Oleum Æthereum at the Baltimore meeting of the American Pharmaceutical Association in 1863, when he was elected a member. In 1866 and 1867 he was appointed chairman of the Committee on the Progress of Pharmacy; in 1872–3 he made a volunteer report on the Progress of Pharmacy—the chairman of the committee being unable to act—and presented it at the Richmond meeting in 1873. At this meeting he was elected to the newly-established office of Reporter on the Progress of Pharmacy, in which he continued till 1890, when ill-health caused him to decline re-election; he again took the office in 1895, and held it continuously to 1915. In 1871 he was elected first vice-president of the Association, and in 1874 to the office of president.

In 1870 he aided in the organization of the Louisville College of Pharmacy, was elected its president, and re-elected annually till 1881, when he declined. He occupied the Chair of Pharmacy of this college from 1871 to 1886 (except 1881–1883), and again from 1896 to the present day.

From 1870 to the present time he has been a delegate from the Louisville College of Pharmacy or the Kentucky Pharmaceutical Association, or both, at each Convention for the Revision of the United States Pharmacopœia, serving on the Committee of Revision of 1890 and 1900 and being again elected a member of that committee at the last convention.

In his own State he was honored by appointment on the first Board of Pharmacy in 1874, on which he remained till 1886; in 1897 he again accepted appointment, and has been a member to the present time.

He has served as president of the Kentucky Pharmaceutical Association, of which he has been a member since its organization in 1877. In March, 1887, his Alma Mater conferred upon him the degree of Master in Pharmacy.

Julius A. Koch.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

"THE LABORER IS WORTHY OF HIS HIRE" AND THE PUBLIC A "SQUARE DEAL."

THE Stevens Bill of the Sixty-third Congress (H.R. 13,305) was introduced by Representative R. B. Stevens on February 12, 1914, but failed of consideration. It was introduced by Representative W. A. Ayres in the present session of Congress on December 14, 1915, and is now known as the Stevens-Ayres Bill (H. R. 4715). It should not be confused with the Stephens Bill recently introduced by Representative D. V. Stephens, from which it differs; the Stephens Bill is a price-maintenance measure, also, but it permits special discounts for quantities, cash, and freight differentials.

The Stevens-Ayres Bill *aims to give the manufacturer the legal right to make a price contract, or rather a contract for the maintenance of the resale price of "branded" goods, at wholesale, at retail, and to the public.*

Under the law, as it now stands, the manufacturer may "brand" his goods, but he has no legal right to fix their resale price and protect himself against property-loss by predatory price-cutting.

While the primary effect of price-cutting on branded goods may be of benefit temporarily to the public in lower prices, the secondary effect is inexcusable injury to the public through the substitution of other goods and the elimination of branded goods from the market.

The Stevens-Ayres Bill is simply an attempt to standardize the price of branded goods—to expand the established trade policy of "one-price only" into a policy of "one-standard-price only for branded goods." The bill applies *only* to branded goods—trade-marked, patented, copyrighted, or in any way so branded that the common law will uphold the right to name, style, or other individuality in merchandising. It will protect products of a kind only. It will *not* apply to the sale of general commodities like "flour, sugar, salt, soap," etc., but it can be made to apply to "brands" of these commodities, sold in packages as such and so marked. It will not eliminate competition between manufacturers, but it will make competition in brands dependent on quality and service and not on price only, as at present. It will protect manufacturers in the sale of individualized goods and the public in the purchase of the same.

The provisions of the Stevens-Ayres Bill are not mandatory. The manufacturer may or may not avail himself of them, but in view of the opportunity they will give him to protect the price of his "branded" goods against "unfair competition," and the destruction of his property rights, there is little doubt as to his probable attitude.

The Stevens-Ayres Bill has the enthusiastic support of manufacturers, wholesalers, and retailers throughout the country, and, where its general principles are understood, of the public, but the bill will fail of passage unless it be sufficiently backed by public opinion, and the big question is, "Is the Stevens Bill in the interest of the public?" The answer to this question is another query: "Is cut-throat competition in the interest of the public?"

It has been recently said by the Louisville Post that "Cut-throat competition, from its very nature, is self-limited, and we can afford to let it alone. So long as men do not lie and steal and enter into illegal combinations to destroy their competitors, we can afford to let competition alone. That is sound business, and there is no other basis upon which business can be built up."

Now, as a matter of fact, there is legitimate competition and there is illegitimate—the kind that stimulates the growth and development of business, and the kind that strangles it. It is *not* true that cut-throat competition is a self-limited disease and will cure itself; cut-throat competition is a chronic disease that grows by what it feeds upon, and its ultimate result is death to legitimate business.

The practice of the medical world to-day is in the direction of preventive medicine—curing disease before it happens, to use an Irishism—and the tendency of the business world should be to prevent diseased conditions, and not wait until they become chronic.

When business men indulge in predatory price-cutting, selling branded goods of established reputation for practically cost as bait to lure the public and facilitate the sale of other goods on which there are large profits, they cannot be charged under the law with lying and stealing, but the moral effect is the same. They are using the good name of superior products to facilitate the sale of other products, and as the greatest of all bards has written:

> Who steals my purse steals trash;
> But he that filches from me my good name,
> Robs me of that which not enriches him,
> And makes me poor indeed.

The predatory price-cutter uses the good name of quality-products to enrich himself at the expense of the public and the manufacturer, because, if standard products are to be retailed at no profit, it is only a question of time until they will *not* be sold by retail dealers generally, or even by the cutters themselves; and both the public and the manufacturer will suffer.

The value of a standard product to the public is not only in the quality of the product and the quantity the consumer receives for his money, but also in the service which accompanies the product—convenience of package, accessibility of market, and the guarantee of the manufacturer who stands behind the product.

Ward Macauley, in an article on "The Maintained Price" (The Forum), says: "Modern business must rest on the secure foundation that every article must be paid for; every item from raw material to consumer must be adequately compensated. The maintained price is the most effective means as yet suggested to that end. The maintained price means stable business conditions, power to enforce good pay, good hours, and good surroundings for employees. It means the placing of competition on the higher basis of superior service. Customers will no longer seek the advice of the man who knows the most about his business and then purchase from a man who will shave half of one percent off the selling price. The maintained price places brains at a premium. The cut-price fosters trickiness and the lowest ideals of business. The maintained price tends to make the dealer and the manufacturer alike feel a responsibility for the customer. The 'cut-rate' tends to the feeling 'a bargain's a bargain, let the dealer beware.' Even if it were true that cut-rate prices occasionally resulted in actually saving money for consumers, it would not be a genuine benefit, for it would be better for us to do with less than to have things we have not paid for. As a matter of fact, however, cut-prices are always, and must be, in the very nature of things, compensated for by higher prices on other merchandise. The maintained price conserves the equality of the customer and assures the manufacturer of well-advertised goods the power to treat all of his patrons alike, regardless of their place of residence."

There is something more in the business life of to-day than the piling up of dirty dollars—and this is: giving the public a square deal in the quality, quantity, and service of goods bought and sold, giving the world as much as, or more than, is taken. Or, as Marco Morrow, in the "Rotarian," so beautifully expresses it:

The power to give the world more than I take.
The power to be a man!
Let me not be
A mendicant at mankind's busy door
Beseeching alms, in heaven's name, my lords!

Oh, I have seen them in the market place,
Rich merchants clothed in purple, haggling there
Over some tawdry bauble with such greed
They made the very beggars sick with scorn

Let me not be a gorging bird o' prey
That gluts upon the carrion of earth—
The crafty man who waits disaster's blow
And pounces on the hapless, hopeless one.
Let me not be the high-born mendicant
Who idly eats Life's bread and drinks Life's wine—
All alms bestowed by Chance or Circumstance.
Let me not be a beggar at Life's board,
But give to me, oh God, the power to serve
My fellows and my age—the power to live—
The power to work—co-laborer with Thee!
And give to me that honest pride which scorns
To take more than my honest share—The pride
To give my fellow man more than his due.

J. W. England.

WILLIAM PROCTER, JR., MONUMENT.

THE general regard of posterity for their worthy predecessors and following their examples are among the rewards of those who have deserved recognition in their respective activities.

The present generation of pharmacists has decided to place a bronze statue of William Procter, Jr., in the Smithsonian grounds, Washington, as an evidence of their appreciation and recognition of his distinguished services. This will acquaint the public generally and future pharmacists in particular with the high regard entertained for the "Father of American Pharmacy."

The movement originated with the American Pharmaceutical Association, and the promotion was placed under the direction of Mr. John F. Hancock, of Baltimore. The National Association of Retail Druggists actively and enthusiastically joined in this labor of love and therefore is entitled to share in the honor, as it has in the privilege of participating in this worthy undertaking. This work was truly a privilege; for men without these affiliations would gladly have erected this memorial to the eminent pharmacist whose memory is revered wherever pharmacy has progressed. The guiding thought has been that all American pharmacists should have an opportunity to share in the joy of giving to so worthy a cause. There are still a few pharmaceutical associations that are not represented in the list of donors. This has doubtless been an oversight on their part, for it would become a source of keen regret if they overlooked the first opportunity of this kind accorded to American pharmacists. No large additional sum of money is needed, and, whatever this may be, contributed by any State association, will give recognition to all pharmacists of the State.

Chairman John F. Hancock, in making his final report, will give proper credit for every subscription received. His deepest interest is in this work, and he has gladly welcomed the opportunity of giving his time so that the cherished hope of completing the monument next year, marking the one hundredth anniversary of the birth of William Procter, Jr., may come to fruition.

The full amount necessary for the completion of the monument had been subscribed, but the requirements of the Commission of Fine Arts necessitated changes in the design and consequent additional cost. The assistance of pharmacists is necessary, however, to encourage Senators and Congressmen to give support to the bill presented by Congressman Linthicum, of Maryland. So that the readers may be informed regarding the measure, which provides only for the erection of the pedestal and base for the monument, it is appended:

"A BILL

"To provide for the erection of a pedestal and base for a monument to William Procter, junior, in the Smithsonian grounds, at Washington, District of Columbia.

"Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the sum of $2000, or so much thereof as may be necessary, is hereby appropriated, out of any money in the Treasury not otherwise appropriated, for the erection in the Smithsonian grounds, in the city of Washington, District of Columbia, under the direction of the Secretary of War, of a pedestal and base for a monument in memory of William Procter, junior.

"In the preparation of the plans and the selection of a site for said monument and the execution of all work in connection therewith the Secretary of War shall form a committee, with whom he may confer, composed of Doctor John F. Hancock, Doctor Charles Caspari, junior, James E. Hancock, and Parker Cook, comprising the William Procter, Junior, Monument Fund Committee of the American Pharmaceutical Association, and two other persons to be designated by the Secretary of War; *Provided, however,* That the decision of the Secretary of War shall be final in all matters connected with this work; *Provided further,* That the said monument, pedestal, and base shall not be erected until the design and site selected therefor shall have been approved by the Commission of Fine Arts; *And provided further,* That the money herein appropriated shall be drawn from the Treasury and disbursed as needed, in the progress of the work, by the Secretary of War or his duly appointed representative." E. G. E.

COÖPERATION IN AND FOR PHARMACY.

SAVE only here and there a striking example to the contrary, less consideration is given to the departments of pharmacy by universities than to other branches of the institution engaged in qualifying students for active professional or business life. A corresponding dereliction obtains in sustaining schools not attached to universities.

There is a zealous legislative activity displayed in fixing requirements for the conduct of the pharmacists' business, regulating their sales, and providing measures intended to protect the public.

The latter statements point out the deep concern for proper protection of the public and the other an apathy relative to duties equally as serious; namely, preparing those into whose charge the sale and dispensing of drugs are assigned.

Coupled with this there prevails a certain degree of indifference on the part of pharmacists, manufacturers, and dealers, who are financially able to provide endowments and who give to other worthy objects, but no more important in so far as their own interests are concerned.

It is probable that the somewhat neutral attitude exhibited by pharmacists in matters that deeply affect their welfare has influenced the mind of the public and the motives of legislators. The statement might be modified by saying that pharmacists are not sufficiently aggressive or persistent in their demands, but we are inclined to believe that greater enthusiasm for their vocation and closer coöperation between the votaries would bring about a change for the better. It resolves itself into this: that those are helped who help themselves.

We would ridicule the attempt of twelve men, one after another, shifting a weight requiring the combined power of all, but very frequently undertakings are attempted in very much that way.

There are comparatively few pharmacists who really encourage a school of pharmacy; visitations are seldom occurrences. Possibly the teachers of these schools are just as derelict in coöperating with the pharmacists of their respective communities. We are all too deeply absorbed in individual pursuit, although knowing very well that the progress we wish for requires coördinated action.

The potential work consummated by the American Pharmaceutical Association was largely possible because of the generosity of some of the members in giving of their money and time so that many might be benefited. Their spirit of altruism should stimulate men of means to follow their excellent precepts by encouraging, in one way or another, associations and institutions engaged in the promotion of pharmacy.

In this invitation we are not unmindful of the many contributions that have been made in the past, but solicitous for a continued and enlivened interest so that in this progressive age pharmacy may keep a forward pace.

Our energies cannot all be similarly directed in behalf of the Association nor for pharmacy in general, neither would results redound to the greatest advantage. The one who is influential in enlarging the scope or numerical strength of the Association has performed an essential and very valuable service. E. G. E.

INCONSISTENCIES IN LEGISLATION.

PHARMACISTS are more or less acquainted with procedures in legislative bodies and do not wonder that laws affecting their business are imperfect. In addition thereto we have the peculiar views of the public anent drugs which modulate regulative measures of an order entirely different from those provided for other activities.

It is not easy to understand just how an intelligent person can expect safe and satisfactory legislation to be enacted during the continuous uproar of legislative assemblies. In a business office, when problems are discussed, there are order and quiet counsel; every proposition is analyzed before final action is taken.

Unfortunately those best informed, who have given propositions they desire to bring before the legislative bodies careful study, are charged with selfish motives, while others who are influenced by sympathy or impressed by an experience are given a hearing without thoroughly considering the facts underlying their presentations.

Regulations must be provided for the conduct of the drug business, but, after all, the moral obligations of honest men insure greater safety to the public than fixed and fast rules. There are some glaring and unfortunate examples of law-breaking by druggists, but outside of these there is a general strict obedience. Still, advantages are sought for others in professional lines who are no more entitled to partial consideration. Even with all the opportunities of technical misinterpretation and the many more transactions that present possibilities for errors, there are comparatively few infractions of the Harrison law. Some of these have been traceable to over-persuasion by those who are likewise transgressors, but the law privileges them with discretionary powers not granted to pharmacists.

A peculiar attitude of the public in drug legislation is disclosed in poison laws, and in these provisions the concurrent assistance of druggists is sometimes very pronounced. In a record by S. W. Lambert and H. S. Patterson of the suicides in New York City by poisoning during five years, and numbering 2216 cases, Paris green and arsenic were taken by 48, phenol by 154, opium and morphine by 29, mercuric chloride by 104, illuminating gas by 1554, other poisons 237. Thus it will be seen that the druggists supplied only a comparatively limited number with the chosen means for ending their lives, and without considering the list of suicides by other routes, such as fire-arms, rope, etc.

Sensational newspaper accounts of suicides nearly always induce others to employ the same method so vividly reported. Should this be a poison procured in a drug store, then the thought for sale regulations is at once advanced, but not so if purchased in a grocery or paint store. The inconsistency is striking, for certainly the druggist knows the character of the poison, while to the paint dealer the same chemical is only a pigment. There may be more protection in selling poisons by the pound than by the ounce, but still it presents a rather unique view or involves a distinction without a difference.

When legislators are discouraged relative to opportunities for bills that will evidence their activity to their constituents they turn to the drug business, the complexity of which offers them every encouragement for the exploitation of their zeal. This resourcefulness has developed to such an extent that few sales in a drug store are possible without reference to laws bearing on proper legal transfer of the article called for.

When the stamp tax was enacted, every other business had the opportunity of shifting the burden on the consumer; not so with the druggist. Fortunately there is an awakening to the injustice of this tax, and some congressmen are openly expressing their disfavor, so that there is a probability of repealing this tax. Speaker Champ Clark is among those opposed to the present act, which, while it burdens the taxpayer, the income therefrom is practically absorbed by the expenses of enforcement. He has expressed a purpose to go on the floor of the House if necessary in opposition to the measure, so relief seems probable, if not assured. The assurance argues for activity on the part of associations and individuals in bringing about a realization, which means the saving of many dollars each year for every druggist, a very large sum in the aggregate.

Again the oft-repeated dictum, let the influence of every member be directed to increase the numerical strength of our Association, whereby its opportunities for continued and better service will be promoted. E. G. E.

MOBILIZING THE INDUSTRIES.

EDWARD N. HURLEY, vice-chairman of the Federal Trade Commission, in addressing the Rubber Club of America last month urged manufacturers to standardize their methods and processes and mobilize the American industries.

Business men are now advised by the Federal Trade Commission to form trade organizations and work together. This is quite a different attitude from that which has obtained, for until recently American manufacturers were hardly safe from prosecution if they even talked to each other, let alone to be on friendly terms.

If Congress will encourage business or give the industries a rest from legislative interference there is hope for their development. Conditions have really improved; there is evident a greater confidence since the courts have interpreted the laws against the restraint of trade, whereby business men have a more definite understanding of what they may do and cannot do.

The Federal Trade Commission in a ruling has held that all manufacturers engaged in interstate commerce, all jobbers and wholesalers so engaged are subject to the provisions of the Clayton Act, which does not prohibit manufacturers from establishing exclusive sale agencies in certain territory and selling their product therein only through such agencies. However, the Commission has not decided whether a refusal to sell under any circumstances would be in violation of the act.

The decisions rendered by the Commission are expressions of opinion only, but may be regarded as precedents in so far as they are applicable in proceedings before the Commission. They are intended for information of business men engaged in interstate commerce. E. G. E.

THE VALUE OF LIFE IS RELATIVE.

OUR life is largely what we make it. It is much easier to lay the responsibility on some one else, but, after all, we are responsible in a large measure for what we are and our profession is.

It is a good thing for a man to occasionally have a vision of what he really is, of what his business or profession is from a layman's point of view, so that a realization of possibilities may be impressed, so that he can see what he can become, whither his business or profession is drifting.

The value of life depends upon the relation of that life to other lives, and this applies to the individual or his vocation and avocation. We are wonderfully related, and the largeness of our relationship determines the value of our lives.

To make life worth while we must love and serve; our vocation and avocation must be of service to other lives; we cannot get away from the relation of one life to that of another.

JOINT SESSION OF THE SECTIONS ON EDUCATION AND LEGISLATION, CONFERENCE OF PHARMACEUTICAL FACULTIES, AND NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

MINUTES OF THE PROCEEDINGS HELD IN THE RED ROOM OF THE BELLEVUE HOTEL, SAN FRANCISCO, CALIFORNIA, ON WEDNESDAY, AUGUST 11, 1915, AT 9:30 A.M.

Chairman F. H. Freericks, of the Section on Education and Legislation, in calling the joint session of the Section on Education and Legislation, the Conference of Faculties, and the National Association of Boards of Pharmacy to order, said:

" I might say that in the past few years, to my knowledge, the attention which the Conference of Faculties and the National Association of Boards of Pharmacy merited has possibly not been given it by the Section on Education and Legislation, and we are seeking to make an effort to bring about a greater interest, to show that these two organizations, which are serving such a splendid purpose, are in close relationship with our Association, and that we should be in harmony at all times and work for a common purpose and end.

" We have with us, and it is proper, I think, that the meeting should be presided over by the three presiding officers of these various bodies, but I would consider it a special privilege to have Dr. F. J. Wulling preside over this joint session, and I will therefore ask him to do so."

Dr. F. J. Wulling then, acting as chairman, stated that he was ready to proceed with the regular order of business as outlined on the printed program, and that the first matter to be considered would be the report from Secretary W. J. Teeters, of the Conference of Pharmaceutical Faculties.

Secretary Teeters then read his report. This report was printed in the September number, 1915, p. 1092, except that portion which follows.

At the Sixteenth Annual Meeting of the American Conference of Pharmaceutical Faculties, held at the city of San Francisco on August 6, 1915, action of special interest to the colleges and faculties was taken, as follows:

Several recommendations contained in a report made by Dr. H. H. Rusby, of New York, as chairman of a special committee created at Detroit last year to investigate and report upon the question of teachers' salaries, were made, viz.:

1. That it is neither practical nor desirable to advise that the Conference make any schedule of salaries, either minimum or maximum, at the present time.

2. That the dean should receive a salary for that office aside from and in addition to what he may receive for his teaching position.

3. (*a*) That the salary of an associate professor shall be two-thirds that of a professor.

(*b*) That the salary of an assistant professor shall be four-fifths that of an associate professor.

(*c*) That the salary of an instructor shall be three-fourths that of an assistant professor.

(*d*) That the salary of an assistant shall be half of an instructor.

(*e*) That each of these salaries be fixed on an advancing scale, from a minimum to a maximum, and that the minimum for one grade be equal to the maximum of the grade next lower, three years being required for the maximum to be attained; and that the salary should pertain to the position, and not the man.

The last clause (*e*) of the third recommendation was amended to the effect that an increase of salary shall go with every promotion in rank, without having to wait for a year for such increase.

The recommendations as thus amended were then adopted as the recommendations of the Conference.

The question submitted to a special committee last year as to whether the regular two-year college-of-pharmacy course should be extended to three years in 1920 was reported upon adversely, as not warranted by present conditions, in a report submitted by Chairman H. M. Whelpley, of St. Louis.

The Conference adopted a motion to refer to the secretary and Executive Committee, with power to act after conference with the Publication Committee of the American Pharmaceutical Association, a proposition made to consider the publication of the proceedings of the Conference in the Journal of the American Pharmaceutical Association.

President Caswell A. Mayo moved that the report be referred to the Committee on Publication, stating that it was his understanding that the report did not require any other action from the body; that this was a joint session of the American Pharmaceutical Association, and that these proceedings constituted a part of the general proceedings, which motion was seconded.

Chairman Wulling then put the motion, and Mr. Mayo stated that the publishing of the report was discretionary with the American Pharmaceutical Association; that the joint session could hardly direct the Association to do it; but that the action taken would indicate the wishes of the joint session. Whereupon the motion was put, regularly seconded, and declared carried.

Chairman Wulling then called for a report from the National Association of Boards of Pharmacy by Mr. H. C. Christensen, secretary.

Mr. Christensen then presented his report. (This was printed in September number, 1915, pp. 1087–1091.)

Secretary Christensen stated that the joint session considered the recommendation from the Conference with reference to reconsidering the proposition of continuing to hold the meetings previous to that of the American Pharmaceutical Association, but that the best they could do now was to have the matter referred to the Executive Committee. Secretary Christensen said that the officers of his organization would prefer to hold the meetings prior to those of the American Pharmaceutical Association, but that the majority of the members held a different view.

President Caswell A. Mayo moved that the report take the same course as the previous report—be referred to the Committee on Publication of the American Pharmaceutical Association—which motion was seconded.

Dr. J. H. Beal called attention to the fact that the definition proposed in the report for proprietary medicines was materially different from the definitions accepted by the supreme courts of the various States; that it was also at variance with the definition adopted by the Conference on Pharmacy and Medicine of the American Medical Association, and materially different from the definition adopted by the Commission on Proprietary Medicine adopted by the American Pharmaceutical Association; that, with the permission of the Section, he desired to read the definition by the Commission.

"In its widest sense, a proprietary medicine is any drug, chemical, or preparation, whether simple or compound, intended or recommended for the cure, treatment, or prevention of disease, either of man or of lower animals, the exclusive right to the manufacture of which is assumed or claimed by some particular firm or individual, or which is protected against free competition as to name, character of product, competition, or process of manufacture by secrecy, patent, copyright, trade-mark, or in any other manner."

The custom of taking out patents upon medicinal mixtures ceased, but the custom of selling them in packages of distinctive form and size continued, and so they have continued to bear the same designation as formerly. The term is now wholly inappropriate, but is apparently so firmly fixed in usage that it seems likely to persist as long as the class of remedies to which it is habitually applied continues in existence.

The distinction between the two classes of proprietaries finally approved by the Commission is expressed in the following definitions:

Proprietary Medicines Exploited in Accordance with the Requirements of Medical Ethics, or so-called "Ethical Proprietaries": Proprietary medicines, the active ingredients of which, with their proportions, are stated on the label or otherwise published, and which are not advertised to the general public, either through the public press, by accompanying circulars or in any other manner, and not accompanied by printed matter calculated to encourage their use by the laity without the advice of a physician.

"Proprietary Remedies Advertised Directly to the Public," or so-called "Patent Medicines": Proprietary medicines, whether of secret or open formula, which are advertised directly to the general public through newspapers, by circulars or in any other manner, and the packages of which are accompanied by printed matter specifying the affections, symptoms, or purposes for which the remedies are recommended, and directions for their use.*

Chairman Wulling then suggested that possibly the Section ought to dispose of the motion first, stating that it might be well and entirely appropriate for Dr. Beal to make a motion later offering the definition, which he had read, to the consideration of the boards, and that if there was no objection he would put the motion for the disposition of the report and that thereafter it might be discussed.

On vote the motion was declared carried.

President Mayo said that he thought the only point that could be brought up, it seemed to him, in connection with the matter, would be to direct the attention of the members to the difference in the point of view of the Commission and the boards, and he therefore moved that, in the event the Committee on Publication should publish the report, it be requested to direct attention to the fact that the Association had accepted the definition of the Commission. This was seconded and carried by vote.

Dr. Beal then read the following from the report of Mr. Christensen:

"That the term 'patent' or proprietary preparation or remedy be defined as one the name of which does not appear in the United States Pharmacopœia or National Formulary or the complete formula of which is not printed on the label of the container."

Dr. Beal stated that the committee which had presented the report made no claim for the originality of the definition; that it was copied, he believed, from the law either pertaining to pharmacy or the Pure Food and Drug Commission of Louisiana and also the Canadian Law.

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* The terms "ethical" and "non-ethical" as employed in this report are intended merely to distinguish between remedies exploited in accordance with the rules of medical ethics regarding the advertising of medical agents, and those advertised to the general public in contravention of such rules. The terms have been used for want of better, and are not to be understood as implying any idea of relative merit.

President Caswell A. Mayo remarked that the phraseology indicated that it had probably been based upon the report of the British Parliamentary Commission, and that it was used as a basis of a definition adopted by the Board of Health of the city of New York. This was almost identical with the definition read by Dr. Beal, only that they were termed "proprietary medicine, patent, proprietary medicine," and that it provided for the registration of the formula. President Mayo thought a part of it was based on that; that the point Dr. Beal wanted to bring out, and one which he thought desirable, was the difference between the two, so that there would be no misapprehension on the part of the casual reader.

Chairman Wulling said that where there were two definitions by two representatives of two different organizations a little confusion might arise, and it was very desirable to harmonize the definitions, but that it would be a matter for the Boards of Pharmacy to take up.

Secretary Christensen said that it seemed to him that the discrepancy only showed more plainly the advisability of the two sections getting together more closely, not only regarding legislation, but on other matters; that the proposed committee on legislation could find some way out of the difficulty, even though the resolution had been adopted, and that it might be the means of enabling the joint session to avoid like disagreements in the future.

Dr. Beal then stated that his object in bringing the subject up now was to avoid the apparent inconsistency of the two associations, presenting the matter in different sections, adopting the two different definitions for the same thing; that he was sure the definitions which had been submitted from the Boards of Pharmacy would not stand the test of the courts; that secrecy had nothing to do with proprietorship; that he believed it would be advisable that some joint committee be arranged for, to harmonize the two definitions.

The Chair suggested that there was a joint committee to whom this matter could be referred.

Dr. Beal moved that the two definitions be referred to the Joint Committee.

The motion was duly seconded, and after voting the same was declared carried.

The Chair then stated that he had been asked by two different persons whether he would request the Secretary of the Boards to explain briefly what the procedure for reciprocal registration was.

Secretary Christensen then read the following from the Constitution and By-Laws of the National Association of Boards of Pharmacy:

ARTICLE II.

Any pharmacists who are registered by examination in any State which is an active member of this Association may secure registration in any other State by sending the fee of $5 to the Secretary of this Association and applying for the necessary blanks, which will indicate that this fee has been paid, and filing said application with the Secretary of the State Board in which they desire registration, which has been certified to by themselves and by the Secretary and President of the Board where they first obtained registration. Said applications must indicate the following:

(*a*) They shall be twenty-one years of age.

(*b*) That they shall have had at least a grammar school education or its equivalent.

(*c*) That they must present evidence of good moral character from two registered pharmacists in the State from which they come.

(*d*) That they shall have had at least four years' experience in a pharmacy where physicians' prescriptions are compounded and dispensed under the direct personal supervision of a registered pharmacist; *Provided, however,* That graduates of recognized colleges of pharmacy, who have acquired at least two years' actual drug-store experience, as described above, shall be considered as complying with this section; *Provided, further,* That they must have had, prior to their examination and registration in the State from which they apply, the legal experience necessary for applicants for examination and registration in the State to which they apply.

(*e*) That they shall have passed an examination on pharmacy, chemistry, materia medica, and practical work, and have made not less than 75 percent general average and not less than 60 percent on any one branch.

(*f*) That the applicants must have practised their profession at least one year prior to making their application for reciprocity and subsequent to their examination by the board from which they come.

(*g*) That they shall certify that they expect to reside in the State from which they are asking reciprocal exchange.

(*h*) That they shall have paid a fee of $5 to the Secretary of the National Association of Boards of Pharmacy.

(*i*) That they must be in good standing in the State in which they were originally examined and granted a certificate.

In the first place, an applicant for reciprocal registration had to be registered by examination; that he must have received in that examination an average of not less than 75 or not less than 60 in any one branch or subject on which he was examined; that the minimum number of subjects on which he must have been examined, which examination included the subjects of pharmacy, chemistry, materia medica, and practical work; that he must have been twenty-one years of age when he passed that examination; must have had at least a grammar school education or equivalent. The latter phase would probably be changed now; that he had to furnish two affidavits of good moral character and he must have (the applicant) practised his profession at least one year since being registered by examination either in the State in which he was examined or in some other State, some States holding that the applicant must have practised in the State in which he was registered, other States requiring only that he must have practised a year since registration. Also that they shall have had at least four years' experience in a pharmacy where physicians' prescriptions are compounded and dispensed, under the direct supervision of a registered pharmacist; *Provided, however,* That graduates of a recognized college of pharmacy who have had at least two years' druggist experience, as stated above, prior to their examination and registration from the State in which they filed the application.

That was done for the reason that some States allow a full two years, or a two years' course in a school of pharmacy, while other States grant only the actual time put in at the school.

Now, as to the direct procedure: When an applicant wants to make application, the by-laws provide that he must remit a fee of $5 to the secretary for an application blank with instructions for proceeding.

When I receive that fee I send them an application blank with a form letter which I have, giving instructions for proceeding; he sends that application to the secretary of the board in the State in which he was examined for certification of registration and grades; then it goes with the fee which was required in the State in which he wishes to be registered. That, as a rule, is the same as they require for registration by examination, and it therefore varies from $5 to $15.

There are some States that require only $5 (two or three) for taking an examination and then require $25 for a person coming in by reciprocity, but we are trying to discourage that. I believe that there are only two States left.

Dr. Whelpley: I would like to ask Chairman Christensen this question: Is there any way to prevent a state board, recognizing that certificate of registration, from licensing an applicant without going through this process?

Secretary Christensen: There has not been up to this time. Resolutions were passed at this meeting making it compulsory for them to make application on the regular blank or regular form.

The Chairman: We are particularly fortunate in the next department of our program, since the paper to be read covers an exceedingly interesting phase, two very interesting subjects, and they have been prepared by three gentlemen of great pharmaceutical eminence.

We are going to ask Professor Remington to read his paper on "Coöperation a Necessity." Why should there not be activity between the medical and pharmaceutical professions in this direction?

(The paper by Professor Remington was published in the October number of the Journal, pp. 1237–1240.)

The Chairman: You have heard this paper; what do you desire to do with it?

Professor J. U. Lloyd: Mr. President, it always does me good to hear Professor Remington speak or read a paper. And when he reads a paper such as this, that conforms so to the ideals I have been taught, it brings back to me a courage that I will confess is sometimes almost departed.

I wish to personally thank Professor Remington for the privilege he has given me of hearing this paper. It would have well repaid me to come to San Francisco to hear Professor Remington dwell upon the ethics of pharmacy that came to us in the olden times when pharmacy was somewhat different from what it is now; but the ethics still stand as they stood then. And coöperation is merely *justice*. It is *right*. The druggist has his right and so has the pharmacist, and together they are working for the people. That is the object of pharmacy and medicine.

The Chairman: This paper is before you; what is your pleasure?

Mr. Nitardy: I move it be received and published.

The Chairman: It has been moved and seconded that this paper be published; any remarks on the motion?

Mr. Freericks: Mr. Chairman, it seems to me that Professor Remington at the very close of his paper brings out a point that should have our more mature consideration, and that is the suggestion that there might be a committee appointed, of physicians and pharmacists, who would give closer attention to the differences that exist at the present time and have existed.

Now, that is a most important suggestion, and I think it contains within it the very crux of the difficulties that have existed for years past.

There would be nothing that would be so helpful as this coming together of people who are of different opinion. And if it were possible for our Association in some manner to appoint a committee, and if it were possible for our Association to know that a similar committee would be appointed by the American Medical Association to act upon and give consideration to the differences as we find them to-day, I believe that pharmacy and medicine would be splendidly served.

I do hope that the suggestion made by Professor Remington for such a committee will not be passed over lightly. It is something indeed that will mean a great deal to pharmacy.

The Chairman: Professor Remington has placed before us the situation. Mr. Freericks voices the sentiment of the Chair. We are only voicing the sentiments. The paper will be discussed like all other papers, and the recommendations they suggest ought to be acted on.

The motion having been regularly made and duly seconded, and the question called for, was declared carried.

The Chairman: Now the paper is open for discussion.

Mr. Freericks has already contributed a very apt contribution. I think somebody on the floor should initiate a motion to appoint a committee to coöperate with a similar committee with the American Medical Association. I wonder if there is any objection?

While Mr. Freericks is looking up the matter of committees, possibly you will allow me to say that we have discussed this matter for many years in Minnesota, and have done some fruitful work by getting together with the physicians.

The physicians have for a number of years, have a number of times, in fact, been the guests across the table and across the board, and matters of mutual interest were discussed; and the physicians have reciprocated a number of times and invited the pharmacists; in fact, we covered the State; we had these joint meetings between pharmacists and physicians at Alexandria, Duluth, and practically all the larger centres of population in the State, and as a result there is a very excellent and harmonious communication between the two callings in Minnesota.

It can be done anywhere if some one will initiate the movement; much propaganda work was done at those meetings, and the work of the pharmacists was always endorsed by the physicians. They said, "We want you to tell us what you can do for us and how you can help us."

Mr. Charles Gietner: A movement of that kind was inaugurated about a year ago in St. Louis, which the Alumni Association controlled. They had a "get-together" meeting where many physicians were present and we assembled three hundred people, and the propaganda was thoroughly gone into and a lot of literature was distributed. The St. Louis Medical Society took quite a great deal of interest in it, and I think that meeting will be duplicated again this coming November. That is an effort along the same line as outlined here.

Dr. W. C. Alpers: A movement of that kind has existed in Cleveland. There is, in Cleveland, the Cleveland Medical Association, in which they have a pharmaceutical section; the pharmacists all over the city are invited to come there and become members of that section.

Now, so far as that goes, it has done good work; that is to say, good work for those who attend. At the last meeting there were present 37 physicians and 7 pharmacists. That is the great trouble—to get them out—and the question was put to me at that time, why do the pharmacists not attend such meetings more; why can they not see it to their advantage as the physicians do, to have these joint meetings?

Of course, that may be a different case from the two that have been cited. But if we consider all of them, they seem to be more or less local; that is to say, the work that has been done in Minnesota and St. Louis and other cities is local work. As I understand this motion, it is to be a national affair. If we appoint a committee, it must be a committee that covers the whole ground, the whole country, and the American Medical Association should have a similar committee. Whether such a joint committee could do such work or not is something that only the future will tell. I believe it would be very serviceable; but here again we come to the point that I emphasized at another place during this convention, namely, the lack of centralization of pharmacy, the lack of pharmaceutical centralization, that has authority to speak for the pharmacy of the whole country.

Of course, it is a difficult question in itself, but it is brought up here. We will naturally be asked, " Well, whom do you represent; how many do you represent? " And we must answer, " But a very few, but of those few we speak with authority. " And naturally that point, the question of central authority, comes up, and in every one of our debates it is a knotty problem; centralization has a great deal to do with this work, in having it done uniformly all over the country.

That this committee will be of service is without question. I heartily support the movement and believe some good will come of it.

Mr. Freericks: In line with what Dr. Alpers has said, it occurs to me that, while there is a lack of centralization, there is no question of the American Pharmaceutical Association being representative of pharmacy; I think that is well recognized by the medical men of the country—that *medicine* generally recognizes that; and while we may not represent numerically the pharmacists of the country, by including all or the majority, yet I think our Association speaks for them, and is recognized as speaking for them. On that account a committee, if it were constituted of men who have the respect of medical men in the various localities, and have the respect of medical men nationally, will have that attention that the subject itself deserves, and will bring about a spirited coöperation that will lead to much, in my judgment. It all depends on how the subject is opened up.

What we quite agree on is, that all the efforts, all that have been made in the past, have been local efforts. They do some good, but, as all local efforts, they last for a year or two years, there is a certain enthusiasm, and it wanes, and the effort is altogether lost. There is no general effort for bringing together medical and pharmaceutical men throughout the country; having them agree upon methods for cementing the relationship between the two will change the situation from what it is to-day. Matters of that kind cannot be taken up locally. They must be handled through the national bodies, and, through these, they must reach the local bodies.

I am quite satisfied that if we can take this matter up as suggested by Professor Remington and really make it appear to the American Medical Association that we aim to bring about a better understanding, that we are seeking that which will be for the benefit of the public as well as of medicine and pharmacy, then we may look for a like spirit on their part.

I move you, Mr. Chairman, that a committee of five be appointed of this Association; that said committee be authorized, be empowered, to submit to the American Medical Association a request for coöperation between the two bodies along the lines pointed out, and ask them to appoint a similar committee for studying matters of common interest.

Dr. W. C. Alpers: I second the motion.

The Chairman: You have heard the motion and it has received a second; are there any remarks?

There being none, the question was called for and carried by a unanimous vote.

The Chairman: That committee ought to be appointed, your present Chairman takes it, by the incoming president; the committee will work with him, and unless there is objection that will be the ruling.

Professor Remington: I wanted to suggest: should this not properly be a committee of the American Pharmaceutical Association; should it not go up to the general session, inasmuch as it is going to speak for the American Pharmaceutical Association, and not for the Section?

President Caswell A. Mayo: I offer a substitute by amending the phraseology, to make it conform with our usual method of procedure; that this Section recommend to the general session that a committee be appointed.

Mr. Freericks: I will adopt the suggestion as made by President Mayo.

Chairman Wulling: Do we need to take any action on the amendment?

Dr. Anderson: It has always been my understanding that all resolutions affecting the policy of the American Pharmaceutical Association are referred to the general session for approval, being simply a recommendation of the Section.

The Chairman: It is merely a matter of course, then. Is there any further discussion on the paper? Would Professor Remington like to close the discussion?

Professor Remington: I hardly think it is necessary. The idea seems to have met with general approval, and my only concern now is that it will be effective. I do not wish to put forth effort and have it die from inattention. If the Association will appoint a committee, I think it will be able to do something, particularly, Mr. Chairman, because the American Medical Association has done yeoman service in the past and is doing it now, and I think the American Medical Association will be glad to get such a resolution from the American Pharmaceutical Association inviting coöperation.

And another thing: I think now is the time to strike. I think it is the "psychological moment."

The Chairman: Before proceeding with the program, Dr. Whelpley has an announcement that he desires to make.

Dr. Whelpley: I have here the original constitution and by-laws of the American Pharmaceutical Association with signatures dating back to the first president. It has been customary each year to ask members in attendance who have not previously placed their names on this roll to do so.

Chairman Wulling: The next paper is by Dr. W. C. Alpers on "Qualification Requirements for Teachers in Colleges of Pharmacy."

(The paper was printed in the November number, 1915, pp. 1330–1332.)

The Chairman: You have heard this very timely paper; what shall we do with it?

President Caswell A. Mayo: I move that the paper be received and referred to the Publication Committee.

Mr. F. H. Freericks: I second that motion, Mr. Chairman, and in so doing I want to accept the opportunity of thanking Dr. Alpers for the most interesting way in which he has brought this question before us. It is, undoubtedly, a question to-day that either finds or should find the consideration of all teachers in pharmacy schools.

Now the motion has been duly seconded. Are there any remarks on the motion? What is your pleasure?

The vote was called for and decided in favor of the motion.

The Chairman: Now the paper is regularly before us.

Mr. Freericks: Mr. Chairman, if this matter is brought more closely to the attention of our various colleges it will serve a good purpose. As Dr. Alpers so well points out, we have requirements and we have restrictions for the students, but we seem to have none for the colleges and teaching staffs, and one is quite as important as the other. And, in line with the thoughts conveyed to us in this paper, it seems to me we should have the paper of Dr. Alpers brought more directly to the attention of the various colleges in the country.

The Chairman: If I had gained the floor before the previous speaker I should have attempted to say what he has expressed, but, of course, not so well as has he; so I will merely follow by making a motion that the Editor of the Journal be instructed to have one hundred reprints of this paper made when it is published and a copy sent to each teaching pharmaceutical institution in the country.

Dr. Whelpley: I commend all that Mr. Freericks said, and I feel the author has been particularly happy in expressing himself in this paper, so it should be sent to all who are in any way interested in pharmaceutical instruction.

Mr. Freericks: Will Dr. Whelpley allow that I make the suggestion that there be added the State Boards of Pharmacy as well?

Dr. Whelpley: Yes, make it two hundred copies, and that a copy be sent to each teaching pharmaceutical institution and to the secretary of each board of pharmacy.

I might add, while on the floor, Mr. Chairman, that I feel the American Pharmaceutical Association can do a great deal of work along this line by giving more publicity to the papers brought before it.

The Chairman: Does it receive a second? First, Dr. Whelpley, let me ask, does it contemplate direct instructions to the Committee on Publication? Would it not go to Council first?

Dr. Whelpley: All items of expense must be approved by the Council.

The motion having been regularly made and duly seconded, and the question called for, the same was declared carried after voting.

The Chairman: The Chairman of the Executive Committee of the Faculties states that some of the matters referred to by the reader of the paper are already taken cognizance of by the Conference. Will you state in what way, Dr. Koch?

Dr. Koch: While it is not pertinent here, one of the statements made by Mr. Freericks was to the effect that colleges of pharmacy were multiplying or increasing. I do not believe this is the case; I believe we have fewer colleges of pharmacy at the present time than we had years ago.

Mr. Freericks: I believe the point raised by Professor Koch is quite well taken, but I think I have had opportunity to observe that such new institutions are about to be created, and that there may be institutions of the kind that to-day are not recognized as colleges of pharmacy, but which, because of changes in the laws of their State, are being rearranged to at least satisfy the letter of the law by becoming so-called colleges of pharmacy.

The Chairman: I wanted the Chairman of the Faculties to say that, in considering applications from the colleges, the personnel of the faculty is inquired into quite fully, is it not?

Dr. Koch: Yes.

The Chairman: I wanted that fact brought out.

Now we have the additional great privilege of listening to a gentleman who honors us by his presence. I need not speak of Professor Lloyd to anybody.

He is not very much my senior in years, but he presumes to speak on "Pharmaceutical Apprenticeship Fifty Years Ago." I am not going to compliment the author on the very efficient way he has of remaining with us; I know that is in all your hearts; we should compliment him for the wonderful way he has of remaining with us and absorbing our youth and making it his own.

Professor Lloyd: Were it not for this young man (pointing to Mr. Freericks) I would not presume to bring to you what I hold in my hand now (referring to paper). If I mistake not, it was Longfellow who wrote

In thy journey look not backward.

And I should certainly not have presumed to have looked backward and attempted to systematize what I hold in my hands, had it not been for the personal request of my good friend Freericks.

(The paper by Professor J. U. Lloyd was printed in the November number of 1915, pp. 1333–1342.)

The Chairman: You have heard this admirable and interesting paper by Professor Lloyd; it is now before you.

Dr. H. P. Hynson: I move that the paper be referred for publication with the favorable endorsement of the Joint Section, and with the thanks of this body, representing as it does the Association; that thanks be extended to Professor Lloyd for this paper, which I believe will go down as one of the most interesting contributions that has been made to American pharmacy.

Dr. Alpers: In seconding that motion I desire to add only a few words. It is my firm conviction that if I had seen or heard nothing else but this one paper, I would have felt that my journey from Cleveland to San Francisco was largely rewarded. I myself feel very happy that I have been here and heard this wonderful paper.

The motion having been regularly made and duly seconded, and the question called for, was declared unanimously carried.

Professor H. P. Hynson: As I look around I realize that probably I am the only one here who can thoroughly be in sympathy with Professor Lloyd in his travels through pharmacy, and appreciate the troubles he has had in equipping himself for pharmacy. I will not take time to recite my own experiences. Some day, possibly, if the Association will permit me, I will set forth, as you have, Professor Lloyd, some of my own experiences.

Dr. Blake: Mr. Chairman, as one of the younger generation of pharmacists, I would like to thank Porfessor Lloyd.

Mr. F. H. Freericks: If I were a pharmacist actually engaged in the business, I would want that paper in order to give it to every young man who engaged with me, and I really hope that those who truly love pharmacy will not miss the opportunity of having this splendid story appear in book form.

This is merely a thought on my part; but I do not believe there is anything that would be more helpful for a young man entering pharmacy, that would make him more appreciative of his duties as an apprentice to-day, and it would most certainly tend to instill in him a little more love for the calling that he will pursue, and will enable him to follow somewhat in the footsteps of Professor Lloyd.

The Chairman: An excellent suggestion. I shall undertake to give the students in the University of Minnesota an opportunity to receive the benefits of what Professor Lloyd has told us.

Dr. W. C. Anderson: In accepting the remarks of Mr. Freericks in reference to bringing this before the young pharmacists—the apprentice—and particularly those entering the college, may I say that to-day there are boys, as we all know, who have no idea of the work that engaged the early apprentices. I also believe that in presenting this matter some arrangement should be made whereby the work of Professor Lloyd, the means by which he has progressed, the manner in which he has grown into pharmacy, should be adequately set forth.

The manner in which he has grown into pharmacy is a science; the manner in which he has grown into the hearts and affections of all men interested in pharmacy should, and could, be brought to the attention of these young men, showing that even a humble beginning with the right principles, with insight of purpose, and with perseverance such as Professor Lloyd has had, what results may be attained, and what such a man with such ideals may obtain in the hearts of the pharmacists of this country.

The Chairman: It is a very admirable idea, and I move you that the Editor of the Journal provide extra reprints of the article.

The motion having been regularly made and duly seconded, the vote was called for and unanimously carried.

Professor Lloyd: I want to say to you, my young friends, that you do me too much honor. I know of what I speak. But listen: the one to whom the most credit should be given, the one to whom everything is due—the *ones* rather—are father and mother.

We know that our father and mother always had those ideals; and we naturally had the same ideals; mother and father always instilled them into us boys. They taught us that we lived not in the world for ourselves but for others, and that whatever we did, however little we might do, whatever it might be, we should try to serve the good of the community of which we were a part, whether it be local or large; and as opportunities came we should increase that which we could do for others. It has been the ideal which has guided me and my brothers.

Chairman Wulling: In closing this part of the program I desire especially to thank the last three speakers who have given us such excellent and valuable papers. I will now ask the Chairman of the Education and Legislation Section, Mr. Freericks, to take charge of the meeting.

Professor H. P. Hynson: I move that the three presidents of the bodies represented in this joint session be requested to act jointly and to constitute a committee for considering the relationship of the National Association of Boards of Pharmacy and American Conference of Pharmaceutical Faculties to the American Pharmaceutical Association and present the subject for consideration at the next annual meeting of the three organizations.

An informal discussion followed, and, after a second to Professor Hynson's motion, a vote was called for, resulting in a favorable expression.

Chairman Freericks: This is, as I understand it now, the conclusion of the program for the joint session, and a motion to adjourn will be in order.

The motion was made and seconded, and, after a vote, Chairman Freericks declared the meeting adjourned.

The true rule, in determining to embrace or reject anything, is not whether it have any evil in it, but whether it have more of evil than of good. There are few things wholly evil or wholly good. Almost everything, especially of government policy, is an inseparable compound of the two, so that our best judgment of the preponderance between them is continually demanded.—*Abraham Lincoln.*

HOW CAN THE COLLEGES BETTER EQUIP THEIR STUDENTS FOR BUSINESS.*

BY HENRY P. HYNSON.

It is not because I have anything new or unusual to present upon this subject that I am led to offer this paper; it is prepared simply to comply with the polite request of the chairman, Mr. Thiesing, hoping it will, at least, help to fill up his program.

The era is upon us, I believe, when only experts and severely and especially trained leaders should presume to take up the time of conventions; so very valuable, so very helpful, may these "gathering together" occasions be made. More than ever before do I feel the responsibility resting upon those who undertake to instruct their fellows.

Were I to directly and concisely answer the question that has been given me by the Chairman—the caption of my paper—I would submit the following:

> "By equipping them to efficiently render the actual service they will be called upon to render humanity through their customers, while securing for themselves a reasonable competency with protection against unproductive old age."

Students certainly will not be encouraged to become equipped for their life's work if the colleges, through their faculties, deride, disparage, or condemn the business into which the students are about to enter. It will not do to tell them of the "departed glories" of pharmacy and present the "degradations" into which it has descended.

It may be fearlessly concluded that those who discredit any honest vocation are persons who are not thoroughly—through and through—acquainted with the worth and possibilities of that vocation. It follows, then, that those who would better equip students for "business" should themselves become better acquainted with the real scope of business, with the modern effective methods of business, and with the real science of business.

To better equip students for "business," the colleges must actually know the business; knowing well any small part of it will not do. It is pathetic to contemplate the narrow specialist in pharmacy, holding the idea that his attainments make up the sum-total of pharmaceutical excellence. A fairly good pharmaceutic "Jack of all trades" may have many highly self-enjoyed half hours made possible by the absence of touch with actualities by an arrogant specialist. "There is glory enough for all." Yes, but the glory of all is so wonderfully much more than the glory of any one particular phase of pharmacy. The whole is so broad and so comprehensive as to make it almost beyond comprehension.

All this is an effort to make it appear that the colleges should, in the beginning, encourage and stimulate students to become interested in the more practical features of pharmaceutical practice, and that they should strive to give their matriculants a broader training, not in the so-called higher branches, but in those features of drug-store practice with which they will be sure to come in contact. This is the actual and beneficial trend of medical and dental education, especially, and is the essence of the more recently introduced vocational instruction.

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* Read before joint session of the Section on Commercial Interests and the Section on Education and Legislation.

Much confusion has ever existed as to the proper placement of pharmacy. The triangle has been used to illustrate its three distinct sides—professional, trade, and social. But what vocation is there that has not these three distinct phases—knowledge, practice, and living? There is, at present, no reason for discussing whether pharmacy is a profession or a trade, because it has become a fact that neither professional men nor tradesmen are any longer estimated merely by their vocational attachments, but each is creditable or not, as rated by standards of competency and worthiness. The professional man who is now in favor must be scientific and worthy, while a tradesman who is unscientific and unworthy is now not in favor. More and more in the future will the classification of men be by standards of abilities, attainments, and merits, because it is clearly apparent that what were formerly described as distinctly social or moral characteristics are now considered to be essential parts of a person's general make-up and actual necessities to professional or commercial success. Boors are no longer able to win substantial encouragement in any of the needed occupations of mankind.

Following all this fundamental treatment of the subject, a more specific consideration may be interesting. First of all, a better and happier spirit should be instilled into the student's being; the " joy of work " and the " rewards of work " should be presented and re-presented until the seed sown will at last take root and grow in some part, at least, of the student soil. It is well known that the average student body presents very little good soil, and this pointedly brings up our bounden duty in this regard. We will never fully meet our obligations unless the colleges positively refuse to *continue* as students those who cannot be taught, those who will not learn, and those who are not interested. I will not touch upon the much-discussed subject of admission requirements. The question of " certificate " preparedness or unpreparedness is of so little importance, when compared with the actual character of the student, as shown or developed in the class-room or laboratory, that it is scarcely worthy of serious consideration. At the end of the first semester a survey of each freshman should be most carefully made, and *then,* not at the final examination, should it be decided whether or not he is inherently fit to practise pharmacy. The great majority of students are not " better equipped for business " by the colleges, simply because they, themselves, are incapable of taking on the equipment, or are unwilling to do their part to secure it. Just here it may be most truthfully stated that the student receives but little encouragement to better equip himself in modern efficient business methods from either the precept or example of those with whom he has had business associations.

Forgetting for the time the incapable, the indifferent, and the badly-environed student, what can be done with the better class? As just stated, the instillation of the higher, better spirit of working joyfully and looking with confidence for ample and satisfying rewards.

The colleges will never properly equip their graduates for business until they teach them to make the most out of their personalities, their bodies; how to overcome defects, how to keep them healthy and clean, how to dress and groom them; their carriage, their address, their manners. The boy who cannot learn to use his knife and fork properly will never learn to win creditable success in the business world.

The man who can work honorably and profitably take part in business affairs of to-day must speak well and pleasingly, must write well and pleasingly. His success will not depend upon whether he has one, two, three, or four years of high-school work, nor will it come simply because he is a Bachelor of Arts. He must *know* how to talk and *know* how to write; with all these abilities the college must see that he is equipped. It will not do to say: " He should have learned such things at home or in the grammar school." The college puts its diploma-stamp on the finished product; is it really " finished "? Many of these homely requirements are often discounted by eminently successful pharmacists because they do not remember that they, themselves, *did not always possess such accomplishments,* but gained them in the hard school of experience.

Æsthetics and ethics, in their broader and more elementary sense, are prominent essentials in business equipment. Business men acquire knowledge of these sciences, they scarcely know how, and use them to great advantage. A differentiation of window displays, of signs, of advertisements will show the application. " He profits most who serves best " is a demonstration of the highest and best ethics applied to business getting. " The Golden Rule " has become a commercial law with many.

The colleges of pharmacy can arrange a commercial course that will more nearly suit the requirements of the pharmacist than does the average course at *business colleges.* It may be that the matriculant *should* have acquired much of this commercial knowledge previous to his entrance; so might he have learned how to talk and write, but he did not do so, and the certificate of a high school guarantees no such attainments. Credits and credit men, commercial agencies, their power and uses, are fantastic and appalling to students of pharmacy. Commonplace commercial law, contracts, insurance, promissory notes, drafts, are all necessary parts of the pharmacist's working machinery. I have learned to call the simplest bookkeeping, which is no more than truthful business records, the student's " bugaboo." Department accounts are startling, and yet it is claimed that a pharmacist may be safely launched upon this very practical world of ours without the least idea of what it all means. What a very small part of banking is the handing to the receiving teller of funds and the distribution of them by making out checks! How pitiable is the young pharmacist who knows no more of the helpfulness of a bank than this! A much more pleasing picture is the young pharmacist who goes to the proper bank official with such a clear statement of his business, and with the pleasing ability to present it, that he is able, on his own endorsement, to secure the loan of sufficient money with which to develop offered opportunities. Contrast the pictures of the unfortunate fire victim without inventory, trying to convince the insurance adjuster of the amount of his loss, with another who knows how much insurance to carry and shows, without hesitation, exactly where the goods were located, what they were and their value.

The wholesaler has repeatedly and persistently shown what the pharmacist most needs to make him a good commercial risk, and is necessarily patronizing in his proffered advice and assistance. What these men of larger experience tell us are the needs of the pharmacist, comprehend many of the things the graduates should know, and when they have been taught these items of drug-store practice and they have been learned, then the colleges have better equipped their students for business.

THE ASSOCIATIONS, THE COLLEGES, AND THE BOARDS.

BY W. H. COUSINS.

Upon these three institutions depend the progress and success of pharmacy. They have for constituents the best and most capable men of the craft. They are the three legs of the tripod on which pharmacy stands. In view of the fact that the calling is dependent upon them for support, counsel, and for the shaping of its destiny, it is necessary that there be maintained the closest of relations between them, and the efforts of each body should be reciprocal. Coöperation is essential for the best interests of every member of the profession. The making of a pharmacist may be likened unto the making of a piece of merchandise, in that the one aim a manufacturer has in view is to produce a product that meets every demand made by the man who buys it. The college of pharmacy represents the manufacturer in whose plant raw material is transformed into a finished product. The boards of pharmacy are nothing more or less than censors, inspectors who pass on the product of the colleges. The state associations being made up of the pharmacists of the country represent the ultimate buyers of the product of the colleges. The state associations made up of the buyers of the product made by the colleges and passed on by the state boards must be satisfied. Though, if the product is not satisfactory, then the schools are not alone to blame because the state board licensed the applicant and placed its O. K. on the product of the college. Thus it at once becomes apparent that a standard of efficiency should be established.

The requirements of this standard should be suggested by the association members who are to pay the salaries of the students we license. They should let us know what they want. They should make their specifications of what a pharmacist should be, plain and easy of understanding. The druggists of this country are the people we must please, because they are the ultimate buyers of our product. A student may pass the college censor, he may pass the state board, but he has not met his most critical examiner until he stands before the man who is to sign his pay-check. There is a great need of a standard of efficiency among the pharmacy boards of the United States.

The requirements of the different state boards are at great variance, and the requirements for graduation in the different pharmacy schools are not the same. Owing to this state of affairs, the term "Registered Pharmacist" may have as many meanings as the word "professor," from which we understand that the bearer of the title may be a famous teacher of science, a pianist in a shady restaurant, or the owner of a snake show. Under present conditions, "Registered Pharmacist" is a very vague term. There are too many standards and too little uniformity in the requirements of both the schools and the boards.

If a druggist ordered boric acid and was unable to get two cartons that were the same, he would have just cause for complaint against the manufacturer. Then, if from looking over a dozen applicants for places in his store, he finds a wide range of difference in their qualifications, he has a cause for complaint against the boards and the schools, because they are all under the same label and should be uniform. We find young men who go to an adjoining State to be examined for license to practise pharmacy and ask for reciprocity back to their native States rather than take the examination from the boards in their own

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* Read in joint session, San Francisco meeting, A. Ph. A.

States. We see students who fail in one school and are sent home taken up by another school and graduated. These conditions work to the detriment of pharmacy. Our standards need standardizing.

Solomon's problem of ascertaining which woman the baby belonged to was an easy one compared to the one a druggist has in telling what will be sent him when he orders a registered pharmacist. Something must be done by the boards and colleges to define the term. An employer of pharmacists has a right to know, when he asks a board or a school to send him a registered pharmacist, whether he will get a pink canary or an ostrich. He has a right to know whether the specimen will be merely a tangled mass of legs and arms or a man whose head is working.

We believe the boards are responsible for most of the inefficiency of the druggists of to-day. We believe there should be a national standard established to which examinations should be made to conform. We believe there should be an elimination of obsolete drugs. We require applicants to give the habitat, part employed, dose, and therapy of drugs that have not been prescribed since the Civil War. We require them to know intimately drugs and preparations of drugs that they will never hear of after they leave the examination room. Many of our boards still grill the applicants on botanical drugs that are practically unknown to the modern physician and are unused in this age of the world, and overlook entirely the domain of serum therapy. This is a wanton waste of time and effort, and, so far as fitting himself for the practice of modern pharmacy is concerned, the applicant might as well be trying to bail the ocean with a one-drachm graduate.

We believe that the boards should see that the applicants are qualified to practise the pharmacy of to-day and not the pharmacy of a score of years ago.

An applicant may know more about sarsaparilla root and cinchona bark than Mr. Gillette knows about safety razors, but when asked to prepare some of the newer materia medica for intravenous or intramuscular administration he will find this information about as valuable to him as a pharmacy certificate would be to a bricklayer. Many boards admit that the world moves, but these same boards will submit an examination that no more applies to the demands of modern pharmacy than the Edict of Nantes applies to the city government of San Francisco. The colleges and the boards should see that when an applicant is given his clearance papers he will fill the bill, in so far as qualification is concerned, when he hangs his gold-sealed parchments up in somebody's store.

A long term of years in the retail business has taught the writer that the qualifications of no craft of workers on earth are quite so uncertain as the qualifications of the men we decorate with authority to practise pharmacy. This is not the fault of the men, but rather the fault of the boards So long as each board has a standard of its own there will be no way to determine what a man's qualifications as a pharmacist will be. We urge that the National Association of Boards of Pharmacy, in addition to promoting a model pharmacy law, make a concerted move toward standardizing the examinations. Boards should not concentrate on fig leaves, as they have not been used since Mother Eve allowed them to go out of style in Eden. They should not ask an applicant to name the constituents of Warburg's tincture, giving the amount of each necessary to make a pint, because there is not a man outside of the "nuttery" who can give this from memory. Many a qualified pharmacist has failed because he was unable to write a chapter about some obsolete plant that flourished as a specific during the days of our grandfathers. Others have gone down in defeat because they could not record the constituents and state the use of Brown-Sequard's anti-epileptic mixture, when there are probably not half a dozen men on the American continent who can remember the ingredients, and, so far as telling what it would be good for, we have never found anybody who would even venture a guess.

Schools and boards should be more practical. An applicant should be taught and required to know the things that will enable him to earn his salary and serve the world in the important capacity of pharmacist. He should be taught the processes of combining remedial agents that are in vogue to-day. Pharmacy is a practical science that has to do with modern problems, the solutions to which are to meet modern demands, and not a school for the study of the ignorance of former ages. Faculties and boards should coördinate their work. It would be better if they could agree to eliminate all obsolete, unofficial drugs, and not require applicants to give habitat, Latin official name, and synonyms of so many vegetable drugs that are no longer used. The applicant will have all needed practical knowledge if he limits himself to the official ones. We do not mean by this that all unofficial drugs or preparations of drugs should be left out.

The time we save from discontinuing the study of the therapeutic antiques, especially of botanical drugs, should be devoted to the newer materia medica. The wonders of serum therapy are beginning to loom up before us, and the treatment of disease by injecting solutions directly into the blood are of daily occurrence. The ever-restless trend of science is forward. The unsleeping eye of ambition is ever peering into the dim distance of the future in quest of a possibility that experiment may transform into an achievement.

We must keep up with the wizards of our day. We dare not stop to quibble over our yesterdays, lest we find ourselves lost in the trash heaps of things that were. We hope to see the colleges, the boards and the associations combine in an effort to bring pharmacy up to a uniform standard, thus making "Registered Pharmacist" mean the same thing in every State in the Union.

THE TRUE AIM OF SCIENCE.

The true aim of science, expressed in a word, is to increase the self-consciousness of man. We have emerged from lowly forms of life where self-consciousness is almost, if not quite, non-existent. Each advance has been in the direction of the acquisition of a greater degree of self-consciousness. Long ages ago man commenced to distinguish himself from the trees and stones about him. He began to form a picture of his universe and of himself as related to that universe. His consciousness grew; he distinguished between one tribe and another, between one family and another, between one individual and another. When Copernicus propounded his theory that the earth revolves about the sun, he altered, at one blow, man's conception of the relation between himself and the universe. Man saw himself more clearly: he was no longer the miraculously unique creature he had supposed himself to be. Darwin, with his origin of species, effected another great change in man's estimate of himself. Again man's self-consciousness, his conception of his relations to everything outside himself, acquired an extension and intensification. The main function of philosophy has been of the same kind, and it is interesting to note that it is now thought that the true significance of art is to be found in the same direction.—*From an editorial in Scientific American.*

SECTION OF PRACTICAL PHARMACY AND DISPENSING

EXTEMPORANEOUS TABLET MAKING.*

BY BERNARD FANTUS AND CLYDE M. SNOW.

This is an age of tablet medication. According to Kebler,[1] it is estimated that from one-fourth to one-third of all the medicaments in the United States are administered in the form of tablets. In view of this, is it not remarkable that dispensing pharmacists have so far taken very little interest in tablet making? The assumption is that tablets are unsuited for extemporaneous preparation because they require drying, and that they can be bought much more cheaply than they can be made by the dispensers. So far as the cost is concerned, it is just as true of pills, capsules, and suppositories as it is of tablets. The manufacture in large quantities is much more economical than the making of small lots; and whenever the demand for a certain kind of tablets justifies purchasing them in large quantities, it would not pay the retail pharmacist to make them. We believe, however, that so far as the making of prescription quantities is concerned tablets may as readily and economically be prepared as pills and suppositories.

The principal objection to extemporaneous tablet making is that drying is necessary, whether tablet triturates are to be moulded, or granules are to be prepared for the making of compressed tablets. If now a simple dry process of tablet making might be devised, extemporaneous tablet making ought to be easily accomplished. This study was undertaken to determine to what extent dry processes of tablet making are practical.

GRANULAR MATERIAL.

It is a well-established fact that granular material can readily be compressed in the tablet machine. Hence the following chemicals, kept as they usually are in granular form, are ready for compression in a tablet machine without further treatment: Ammonium chloride, potassium bromide, potassium iodide, potassium chlorate, monobromated camphor, hexamethylamine, chloral hydrate, thyroid, pancreatin, citrated caffeine, and saccharated ferrous carbonate.

Scales and crystals may be broken down to form granules, sifted through a No. 20 sieve, and they are ready for compression, provided the substance is fairly soluble, *e.g.*, boric acid, potassium permanganate, and pepsin. Gums and resins may also readily be made into tablets, as acacia and mastic.

Substances that are insoluble or almost insoluble, such as salol or phenacetine, can be readily made into tablets by themselves because of their flaky nature, but need the addition of a disintegrator; possibly the best is starch. Recently dextrin was suggested[2] for this purpose, 35 percent or 50 percent of which added to bismuth subnitrate does not make the tablets approach in disintegrating quality those made with 20 percent of starch. Hence salol tablets may be readily prepared by using one part of starch to four of salol. They are to be compressed in a tablet machine under considerable pressure. Betanaphthol, acetanilide, sulphonal, and trional may be made into tablets after the same formula.

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., San Francisco meeting.

[1] Kebler, L. F., "The Tablet Industry," Jour. Amer. Pharm. Assn., June, July, August, 1914.

[2] Müller, Bertha S., "A Note on Compressed Tablets," Amer. Jour. Pharm., vol. 87, May 19, 1915, p. 197.

FINE POWDERS.

We have thus far spoken of substances that are in granular or similar form. It has generally been assumed that substances in fine powder are unsuitable for tablet making. This is true if the fine powder is homogeneous. It is not true of certain powder mixtures: Dover's powder, for instance, lends itself readily to compression in a tablet machine.

The suggestion made by A. Schleimer[3] to add three percent of cacao butter shavings to the powder by gentle trituration is of extensive applicability, and enables one to make tablets of such substances as bismuth subnitrate, sulphur, calomel, and charcoal; indeed, of almost any other powder, especially if the proportion of cacao butter be somewhat increased, for instance, to five percent.

The following formula for bismuth subnitrate tablets is suggested:

Bismuth subnitrate	4. grammes
Starch	1. gramme
Cacao butter	0.1 gramme

One of the authors of this paper, experimenting rather extensively on the making of sweet tablets for "Candy Medication,"[4] has found that for sugar and analogous powders much more satisfactory results can be obtained by the use of starch impregnated with an oleaginous substance. The best is liquid petrolatum, for which the name "fat starch" is proposed and for which the following formula is given:

"FAT STARCH."

Liquid petrolatum	25
Starch	75

Mix by trituration.

This "fat starch," present in the trituration to the extent of 20 percent, enables one to make tablets of not only cane-sugar or milk-sugar, but also of all triturations containing a considerable proportion of either of these sugars, as well as of the following substances: Sodium bicarbonate, sodium salicylate, and aspirin.

It should be noted here that cacao powder added to the extent of ten percent lends itself to the same uses in tablet making as "fat starch," and where it is applicable it has the advantage of contributing flavor to the tablet. The added color is sometimes objectionable.

It might be interesting to speculate upon the reason that homogeneous powders in general do not lend themselves to tablet making, while certain heterogeneous powders are readily compressed into forms. A striking example of this is seen in sulphur and charcoal, neither of which can be made into tablets alone, but the addition of as little as two percent of charcoal to powdered sulphur will make almost perfect tablets. It has suggested itself to our minds that electricity might have something to do with these phenomena. It is well known that when a substance, *e.g.*, a glass rod or a stick of sulphur, is rubbed, it becomes electrified. When, therefore, we compress either powdered sulphur or powdered charcoal in a tablet machine, they might be expected to become electrified: the particles becoming charged with the same kind of electricity repelling each other, hence the failure to work well in the tablet machine. If now we mix these two powders which become electrified with opposite charges that attract each other, perfect working in the tablet machine is secured, provided the proper proportion is maintained. We have undertaken some work involving this thought, but have not advanced sufficiently to enable us at present to deny or affirm this hypothesis.

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[3] Schleimer, A., National Druggist, February, 1909, p. 54.

[4] Fantus, B., "Candy Medication," C. V. Mosby Company, St. Louis, 1915.

Tablets prepared by the foregoing processes disintegrate quickly and completely. For tablets made extemporaneously the following advantages are apparent:

1. They are fresh and unaltered.
2. The pharmacist can guarantee the product.
3. It is not necessary to buy large quantities.
4. It is not necessary to carry a large line of tablets.

It will be conceded that the tablet is a most convenient form of medication, and all indications are that its use will increase rather than wane. With the knowledge that the tablet is so popular, is it not the part of wisdom for the pharmacist to fit himself for preparing tablets so that he may be in a position to compound prescriptions for them in a manner that is in keeping with the profession? The manipulations are not difficult, the apparatus is inexpensive, and the different combinations can be quite as readily devised as for the same number of pills.

LABORATORIES OF PHARMACY AND OF PHARMACOLOGY OF THE UNIVERSITY OF ILLINOIS.

RULE FOR CONVERTING DEGREES FAHRENHEIT INTO CENTIGRADE AND REVERSE.

Professor Otto Raubenheimer has sent us the following rule for converting degrees of the Fahrenheit thermometer scale into those of the Centigrade, and, as with all good rules, the reverse calculation may also be made by the method, which is taken from the Bulletin of the College of Pharmacy of Jersey City.

Add 40 to the degree to be converted; if the conversion is from Fahrenheit to Centigrade, multiply the sum obtained by 5 and divide this by 9, then subtract 40 from the result of the division. If the conversion is from Centigrade to Fahrenheit, the only difference is in the second step; namely, the multiplication is by 9, and the division by 5.

A FEW GOOD TOILET PREPARATIONS.*

BY H. S. GROAT.

CASEIN MASSAGE CREAMS.

The most difficult to make and the least attempted of all toilet preparations are, without a doubt, casein massage creams. No single preparation meets with such universal use among the members of the fairer sex, as well as among men, as do these, and, strikingly enough, the most widely sold proprietary toilet preparation in the world is a certain commercial article of this class.

First, for a basis, let us consider for a moment the nature of casein. Milk, we are told, contains three proteid substances: casein, albumin, and globulin. The latter two exist in small quantities and are unaffected by the usual chemical precipitants of casein, but are coagulated by heat. Casein is precipitated by dilute acids, rennet, alum, magnesium sulphate, etc. It supposedly exists in milk in combination with phosphates, presumably the alkaline phosphates. The addition of acids breaks up this combination and precipitates the casein. The precipitation of casein by rennet is due to the presence in milk of calcium salts, and therefore is dependent upon the calcium.

In making casein creams, skimmed milk is recommended, because with pure milk some of the fatty substances may be brought down as part of the precipitate; especially is this true when rennet is used as the precipitating agent. A rancid product is the result when any of the fatty substances are precipitated with the casein, as butyric acid is formed by their oxidation with liberation of ammonia gas, hence the addition of boric acid to the finished product for the double purpose of both antiseptic and preservative.

FORMULA I.

Skimmed milk	1750.0
Magnesium sulphate	175.0
Alum	17.5

To each 100 grammes of the casein add

Boric acid	20.0
Cacao butter	10.0
Carmine	q. s.
Essence of bitter almond	q. s.

Heat the skimmed milk to 120° F., add the magnesium sulphate previously dissolved in hot water, and set the combined solutions aside for an hour. Heat to 135° F. and add the alum previously dissolved in water, and continue heating until the temperature reaches 145° F. Strain through cheese-cloth, wash the casein thoroughly in several waters, and then press dry. Tint the moist casein with carmine, thoroughly incorporate the boric acid and then add the melted cacao butter, then lastly the perfume.

This method of precipitating the casein is known as the alum-magnesium method. In the next formula the dilute acid method is used.

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., San Francisco meeting.

FORMULA II.

Skimmed milk	3850
Hydrochloric acid	30
Boric acid	30
Oil bitter almonds	3
Oil rose geranium	2
Oil sweet almonds	15
Solution carmine	sufficient

Add one gallon of boiling water to the milk, which should raise the temperature of the resulting solution to about 80° F. Mix the hydrochloric acid with a pint of water and add very slowly to the milk solution, stirring constantly to insure complete coagulation and precipitation of the casein, which by this method is caused to separate out in a much finer divided condition than by the alum-magnesium method. After an hour stir the mixture thoroughly in order to break up any and all of the little masses that may have formed, strain through cheese-cloth, and wash copiously in order to eliminate the hydrochloric acid from being present in the finished product. Allow the casein to drain in a cheese-cloth bag for thirty-six hours. Reduce the casein, which should have contracted into a dry, hard lump, to a fine powder, moisten with an ounce of alcohol, add the boric acid, the oil of sweet almonds, and incorporate thoroughly. Lastly add the oil of rose geranium, the oil of bitter almonds, and the carmine solution. It may be necessary to add a little water to make the whole mass a paste of the proper consistency.

In the manufacture of casein creams for the market care must be taken, first, not to tint the product too deep a color, as its sale is likely to be greatly hampered for this one reason; second, to put the product up in jars of tightly-fitting covers. Screw-capped jars have been found to be entirely unsatisfactory, due to the fact that casein creams give off moisture very readily and have a tendency to harden. This is decidedly an undesirable feature, which, if not properly guarded against, will greatly hinder the commercial success of the product, no matter how excellent or how extensively advertised.

COLD CREAMS.

Next to casein massage creams, cold creams are, perhaps, without a doubt the most difficult to make of all toilet preparations, as well as the least attempted by the average retail pharmacist. He is generally satisfied to sell a preparation of an eastern manufacture, whether it bears his own label or not, so long as it yields a better profit than the regularly-advertised proprietaries of this class.

A mixture of hard wax and an oil forms the basis of cold creams, sometimes vegetable and other times mineral. White wax, yellow wax, spermaceti, or hard paraffin, with petrolatum, petroleum oil, almond oil, or castor oil, form the common bases for cold cream manufacture.

Both the color and the softness of a cold cream are very important factors, especially as the commercial success of preparations of this character depends a great deal upon their reception by the fairer sex.

The white color so necessary for cold creams is generally obtained by the addition of borax at the proper stage in the manufacturing, the amount varying according to the different bases used in various formulas, more being used to gain the desired whiteness when yellow wax is used in place of paraffin or white wax for the hard base. The softness and fluffiness of the cold cream depend, first, upon the proper mixing of the oily solution or mass and the aqueous solution of the borax; second, upon the proper beating of the resultant mass into a cream when the mixture begins to harden.

FORMULA I.

Petrolatum	175.0
Liquid petrolatum	10.5
Paraffin	10.5
White wax	48.0
Sodium biborate	3.0
Glycerin	3.0
Water	120.0
Perfume	sufficient

Melt the white wax on a water-bath, add the paraffin, and when it is completely melted add the petrolatum and the liquid petrolatum. Dissolve the borax in the water, add the glycerin and heat the solution to 120° F., and add it gradually to the oil solution, which should be transferred to a Wedgwood mortar, care being taken that the temperatures of both the oil and aqueous solutions are the same at the time of mixing. When the mass begins to congeal, whip into a fluffy, white cream by the aid of a Dover egg-beater. Add 5 to 10 Cc. of perfume and beat in well after the cream has cooled.

In this formula we have white wax and paraffin for the hard base, and petrolatum and liquid petrolatum for the soft or liquid base. The borax is the whitening agent, water the diluent, and glycerin the modifying agent for the borax, converting part of it to boric acid—a preservative.

As a purely epidermatic agent—acting only on the surface of the skin—this formula is very good, though a cold cream, to meet with commercial success, must be of an endermatic nature—penetrating into, but not through, the skin—rather than of an epidermatic nature, as the usual object of applying a preparation of this class is to soften and whiten the skin by absorption into, but not through it, rather than by application of a simply surface-protecting emollient. Nevertheless, this preparation met with very popular favor, even if it is not theoretically perfect.

A first-class cold cream, very suitable for facial massage, is made from:

FORMULA II.

Expressed oil of almonds	77.0
Lanolin	15.0
Paraffin	18.0
White wax	18.0
Sodium biborate	1.5
Solution formaldehyde	0.2
Solution hydrogen dioxide	1.5
Oil rose geranium	0.2
Oil of rose	0.4
Water	27.0

Melt the wax and paraffin on a water-bath, and add the lanolin and later the almond oil. Dissolve the borax in the water and heat to boiling, add to it the formaldehyde and the hydrogen peroxide, and pour the aqueous solution slowly into the hot oil solution, both being at practically the same temperature at the time of mixing. Beat into a cream with an egg-beater, incorporating the perfuming oils before the mass hardens.

The use of almond oil as the liquid base is a decided advantage, as it is of a purely endermatic nature—that characteristic so greatly desired in cold creams. This property can also be augmented by the substitution of petrolatum for the lanolin, as the latter is diadermatic—passing through the skin to be absorbed into the system—instead of endermatic in its nature.

This particular cream, being a peroxide cream, possesses mild bleaching properties(?), which adds to its popularity. The formalin is added to increase antiseptic properties, though perhaps, on account of its presence being disliked by some, it might be satisfactorily replaced by the substitution of a like quantity of hydrogen peroxide.

FORMULA III.—*Non-greasy Skin Cream.*

Stearic acid	15.0
Cacao butter	2.5
Sodium carbonate	10.0
Sodium biborate	2.5
Glycerin	12.5
Water	200.0
Mucilage of tragacanth	50.0

Place all the ingredients in a porcelain dish on a water-bath and heat gradually until effervescence ceases. Remove the mixture from the heat, and when it begins to harden add the perfume—10 Cc. of quadruple extract dissolved in a like amount of alcohol—and mix well. Now heat until melted, and beat the preparation vigorously after the heat is removed, and it becomes fluffy and creamy.

FORMULA IV.—*Non-greasy Complexion Cream.*

Stearic acid	60
Glycerin	8
Sodium carbonate	8
Water	240
Witch-hazel water	300

Heat the water in a suitable vessel on a water-bath, add first the sodium carbonate, next the glycerin, and then the stearic acid. Continue heating until effervescence has entirely ceased. Finally add the witch-hazel and remove from the fire. Beat into a cream as the mixture cools and thickens.

TOILET LOTIONS.

In considering formulas for this class of preparations, we will treat of those of a tragacanth base first, as they are undoubtedly the most popular and most universally used. Of the different formulas considered, the following one yields the best all-round general toilet cream for both ladies' and gentlemen's use. It is favored by the ladies because it is not too sticky and is absorbed readily into the skin; gloves can be worn immediately after its application to the hands. Gentlemen like it very much, as it is an excellent after-shaving cream, in addition to its other toilet properties.

FORMULA I.

Tragacanth	3.0
Water	350.0
Glycerin	9.0
Alcohol	12.0
Menthol	0.5
Perfume	sufficient

Macerate the tragacanth in water for several hours, then strain. To this mucilage add the glycerin and then the menthol and perfuming agent dissolved in the alcohol. Mix. If too thick, dilute with 25 percent alcohol.

A very fine, non-sticky, disappearing face lotion is made from the following formula, recommended by Mr. Hiss, given on page 641 of vol. 51, Proceedings of the American Pharmaceutical Association:

FORMULA II.—*Face Lotion "Hiss."*

Tragacanth (pieces)	5
Boric acid	16
Water	475
Glycerin	80
Alcohol	80
Perfume	sufficient

Dissolve the boric acid in the water by the aid of heat, and to this hot solution add the tragacanth in small pieces; set aside and stir occasionally until the gum is thoroughly and completely softened. Then add the glycerin and strain the mixture forcibly through cheese-cloth and pass enough water through the cloth to make the liquid measure 700 Cc. Shake well and add the alcohol, in which is dissolved the perfuming agent. This is a first-class preparation in every way, and the only improvement that the writer can suggest is the addition of menthol, which in my experience made the preparation "delightfully popular," as the young ladies termed it.

Recently, toilet preparations containing magnesium sulphate enjoyed considerable popularity for a while, due, perhaps, to the large sale, a few years ago, of an extensively advertised "skin food," which upon examination proved to be nothing but crystallized Epsom salts. Of the several formulas experimented with, the following modified one proved the most popular:

FORMULA III.

Magnesium sulphate	120
Tragacanth, powdered	6
Glycerin	90
Heliotrope perfume	30
Water	sufficient, to 480

Triturate the tragacanth and the glycerin to a smooth paste in a mortar with 150 Cc. of water, then add the magnesium sulphate dissolved in 240 Cc. of water. Add the balance of the water, and finally strain through fine cheese-cloth.

The saline and cooling effect of the Epsom salts is desired by a number of people, especially those afflicted with freckles, as the magnesium salt is credited with a bleaching effect.

A choice preparation made from the double base of tragacanth and quince seed is:

FORMULA IV.

Tragacanth	0.4
Quince seed	3.0
Sodium borate	1.0
Boric acid	1.5
Alcohol	15.0
Boiling water	100.0
Glycerin	15.0
Sodium benzoate	0.5
Essence of violet	10.0
Solution of carmine	sufficient
Water	sufficient, to 200.0

Macerate the tragacanth in 50 Cc. of water until it dissolves or becomes a homogeneous mixture. Steep the quince seed in the boiling water for four hours, agitating frequently; then strain carefully through muslin and mix with the tragacanth mucilage. Dissolve the borax, sodium benzoate, and the boric acid in the remainder of the hot water. Mix the perfume, alcohol, and glycerin and add, portion by portion, to the combined tragacanth and quince-seed mucilage, shaking thoroughly after each addition to insure a thoroughly homogeneous mixture. Add a few drops of the carmine solution to give the desired tint, and lastly dilute to the desired consistency by the addition of water.

Of the many different drugs used as bases for toilet lotions, Irish moss proves to be highly satisfactory, as it yields with water a mucilage almost the consistency of syrup. Of the several formulas examined, the two following modified ones are best:

FORMULA V.

Chondrus	30
Water	960
Glycerite of starch	21
Sodium benzoate	2
Phenol	2
Essence jasmine	15

Wash the moss in cold water, place in a suitable vessel and add the water; heat to boiling on a water-bath for twenty-five minutes, strain and add the balance of the water. Add the glycerite of starch and other ingredients, except the perfume, heat on water-bath until all are dissolved, and strain again. Lastly, add the perfume.

FORMULA VI.

Chondrus	3.0
Glycerin	48.0
Boric acid	3.0
Alcohol	48.0
Zinc phenosulphonate	0.8
Water	sufficient, to 400.0
Perfume	sufficient
Solution of carmine	sufficient

Boil the chondrus in water, strain and add the glycerin, then add the balance of the water in which the boric acid and the zinc phenolsulphonate have been dissolved. Dissolve the perfume in the alcohol and add it gradually, shaking after each addition to insure a homogeneous mixture. Finally add carmine to tint to suit.

The phenolsulphonate adds to the antiseptic properties of the lotion, and, being quick-drying in nature, it is much desired in preparations containing a large amount of glycerin.

CHAP LOTIONS.

During the fall and winter there is always a great demand for chap lotions. Both of the following formulas yielded very satisfactory products:

FORMULA I.

Boric acid	8.0
Salicylic acid	15.0
Zinc phenolsulphonate	2.0
Menthol	0.7
Spirit of camphor	60.0
Glycerin	120.0
Compound tincture of lavender	15.0
Bay rum to make	500.0

Dissolve the acids and zinc phenolsulphonate in the bay rum and add the glycerin. Dissolve the menthol in the mixture of the compound tincture of lavender and spirit of camphor, and add to the acid solution a little at a time, shaking thoroughly after each addition.

FORMULA II.

Lemon-juice	40
Spirit of camphor	40
Bay rum	40
Glycerin	60

Add the glycerin to the lemon-juice and mix thoroughly. Incorporate the bay rum and then the spirit of camphor, portion by portion, shaking thoroughly after each separate addition.

COMMERCIAL COÖPERATION FOR NATIONAL UPBUILDING.

The experience of the Chamber of Commerce of the United States in dealing with national questions has definitely proved that the business men of the country in the management of their affairs should be foresighted. New laws are usually a matter of slow growth. Business men generally do not realize this, but if we look back into the history of important legislation in this country we will find that most legislative projects had their inception many years before they reached the stage of enactment. It has too often been the case, however, that business men have been almost wholly oblivious of the demand for legislation in certain directions and the steady growth of sentiment for such legislation as a result of the cumulative effect of discussion.

It is stated on authority that during the past five years some sixty-five thousand laws have been placed on the statute-books of the country. Many of them dealt with business directly or indirectly, and a considerable number of them were framed to correct unworkable or unjust legislation of the past. Many of the old measures, because of their deficiencies, clogged court calendars, added unnecessary uncertainties to business, and impeded justice. It would be interesting to know to what extent this might have been avoided if business years ago had tried in a careful, representative way to make this legislation right, and if legislators, on their part, had tried to understand honest, right-minded business men a little better.—*From an editorial by John H. Fahey, President of the Chamber of Commerce of the United States.*

CONTRIBUTED AND SELECTED

OIL OF STROPHANTHUS AND THE EMETIC ACTION OF STROPHANTHUS.

BY ROBERT A. HATCHER, M.D.

The chemistry and pharmacology of strophanthus and other members of the digitalis group have long presented many difficulties to the investigator, and the confusion resulting from unavoidable errors has been augmented by the publication of papers by careless observers and by those whose purpose was to mislead physicians in the interests of proprietary substitutes for the official drugs and preparations of this group.

The emetic action of strophanthus and other digitalis bodies is so annoying that many efforts have been made to discover its cause, and many suggestions have been offered concerning means of avoiding it.

So long as it was not known how these drugs induced emesis it was only natural that the various means suggested for avoiding it should usually prove futile when employed by the general practitioner.

Strophanthus contains a fixed oil, and it has been suggested that this oil is responsible, in part at least, for the nausea and vomiting occasionally seen after the therapeutic use of the tincture, which contains small amounts of the oil. The disagreeable odor of the isolated oil has given the suggestion a certain degree of plausibility.

It has been shown conclusively by Hatcher and Eggleston[1] that all of the digitalis bodies investigated by them induce nausea and vomiting through their action on the vomiting centre in the medulla, and that therapeutic doses of these drugs are without important direct action on the gastric mucous membrane.

It follows, from the foregoing statement, that the nausea and vomiting can be avoided only by the proper regulation of the dose, and any attempt to suggest ways of avoiding these disagreeable side actions without taking the cause into consideration merely serves to mislead in so far as the proffered suggestion is accepted.

The possibility that the oil or fat in digitalis and that in strophanthus might exert some nauseant action led me to undertake an investigation of the question some years ago, but the investigation was abandoned after I had become convinced that the nauseant action of therapeutic doses of these drugs was invariably of central origin, and that very large doses of the fixed oil or fat from these drugs could be administered to cats by the mouth without inducing symptoms of any kind.

The absence of any nauseant or emetic action of the oil or fat in therapeutic doses of digitalis and strophanthus was mentioned by Eggleston and Hatcher[2] in a paper dealing with the relative emetic activities of various digitalis bodies.

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[1] Journal of Pharmacology and Experimental Therapeutics, 1912, iv, 113.

[2] Journal of the American Medical Association, 1913, lx, 499.

It has been said that when once an error finds a place in a text-book it becomes immortal, and so long as errors find champions they will demand refutation, and I have therefore extended the work done some years ago in order to obtain more exact information on the subject.

A discussion of the literature of the subject would be profitless, and I will say at once that I do not know of any investigator who has obtained evidence that the oil or fat present in therapeutic doses of tincture of strophanthus (or that of digitalis) has any action on the gastric mucous membrane that can be detected.

The present paper is intended to enable those readers who are not trained in the methods of pharmacologic research and in the interpretation of the results thus obtained with reference to their therapeutic significance to estimate correctly the work of those who attempt to show by the results of experiments that the oil of strophanthus contributes to the nausea and vomiting that are sometimes seen after the use of therapeutic doses of the tincture of strophanthus.

OIL OF STROPHANTHUS.

The official strophanthus (*S. Kombé*) contains about 30 to 34 percent of a greenish-yellow, non-drying oil, that is only slightly soluble in 95 percent alcohol, and soluble only in minute amounts in a mixture of alcohol and water in the proportion directed by the Pharmacopœia for making tincture of strophanthus. The isolated oil has a slightly disagreeable odor, somewhat resembling that of linseed oil, but the odor of the seed and that of the tincture are pleasant to many, and rather suggestive of the odor of certain edible nuts.

The several specimens of the oil of strophanthus that were used in the present series of experiments were obtained as follows:

1. A bright green oil, or fat,[3] solid at room temperature, readily soluble in 95 percent alcohol, obtained from a specimen of ground *Strophanthus Kombé* in an original package bearing the label of Gilpin, Langdon & Co.

This oil was obtained by shaking the ground seed with successive portions of petroleum benzin, filtering and evaporating off the benzin over a water-bath.

2. Green oil, similar to No. 1, extracted from the residue of an evaporated tincture of the ground seed just described.

3. A green oil closely resembling No. 1, extracted from the marc left after making the tincture from another portion of the seed that yielded No. 1.

4. A greenish-yellow oil, liquid at all temperatures above 0° C., only slightly soluble in 95 percent alcohol, and even less soluble in a mixture of alcohol and water in the proportion directed for making tincture of strophanthus. The seed

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[3] Catillon (Bul. et Mem. de la Soc. thérap., Paris, 1887, p. 217) examined a specimen of *Strophanthus hispidus* that had been obtained from Africa and which he claimed to be of undoubted authenticity. He reported that the seed yielded 32 percent of a beautiful green oil, that was soluble in alcohol and which was probably inert. His description agrees exactly with the oil obtained by me from a specimen of ground *Strophanthus Kombé* bearing the label of Messrs. Gilpin, Langdon & Co., who have assured me they identify all lots of strophanthus ground by them.

from which this oil was extracted were supplied to me by Professor H. H. Rusby several years ago, and by him identified as *Strophanthus Kombé.* The seed were beaten in a mortar with sand and extracted in the manner described for No. 1. The yield of fixed oil was 34 percent of the weight of the seed.

5. An oil closely resembling No. 4 in appearance and solubility in 95 percent alcohol, extracted in the manner just mentioned from brown seed supplied by Professor Rusby and by him marked "Spurious" strophanthus (*Strophanthus hispidus?*).

No attempt was made to estimate the amount of oil in this seed, but about 25 percent was obtained by imperfect exhaustion.

PHARMACOLOGIC EXPERIMENTS WITH OIL OF STROPHANTHUS.

Two experiments were conducted by simply smearing the oil on meat and feeding it to cats. These ate the meat readily, while a third refused the meat so treated. In the remainder of the experiments the oil was weighed or measured and made into an emulsion with acacia and water, ten parts of the emulsion containing one part of the oil. The emulsion was administered to the cats through a stomach-tube, a little water being used to wash the vessel and the tube, the washings then being passed into the stomach.

The animals were observed until emesis occurred or for periods of one to three hours, and usually on the following morning, to see whether vomiting had occurred during the night.

It will suffice in most cases to report the results of the experiments, but a few of the protocols will be given in detail.

A cat of medium size received a dose of 100 mg. of the green (No. 3) oil per kilogramme of weight and another received a dose of 275 mg. of the same specimen of oil per kilogramme. Neither animal showed any symptoms.

One cat vomited and defecated after receiving a dose of 450 mg. of the green oil (No. 2) per kilogramme of weight, the effects being strongly suggestive of strophanthin poisoning.

I had gained the impression, from the results of experiments conducted some years previously, that the oil of strophanthus contained traces of strophanthin, and the impression was strengthened by the observations of the effects just mentioned. The following test was performed in order to determine whether traces of strophanthin were actually present in the oil:

A specimen of the green oil (No. 1) was dissolved in 95 percent alcohol and precipitated by the addition of water. The mixture was filtered through a previously-wetted filter, evaporated on a water-bath to a small volume, traces of oil being removed from the residue, and the latter injected intramuscularly into a cat. The animal died in thirty-eight minutes after having exhibited the typical symptoms of strophanthin poisoning, including nausea, respiratory disturbance, a peculiar cry that is typical of the sudden stoppage of the heart-beat, and convulsions. Another test gave nearly similar results, hence there can be no doubt that the specimen of green oil used in the experiment already recorded contained traces of strophanthin, and steps were taken to purify the oils used in the subsequent experiments, by shaking them with alcohol and adding an excess of water to precipitate the oil. In one case (that of No. 5) a mixture of alcohol and ether was used in order to effect the solution of the oil. The oils were then collected on paper previously moistened with diluted alcohol.

The presence of the contaminating strophanthin is probably explained by the following observation: When the benzin with which the ground strophanthus had been shaken was decanted onto the filter-paper it was observed that a trace of impalpable powder passed through the filter; the filtrate was then passed through a second paper, an apparently clear filtrate being obtained, but when this was allowed to stand a trace of precipitate formed. The solution was filtered again and apparently all of the powder was removed, but doubtless traces of the powder continued to pass through the paper, though the filtrate was of a beautiful clear green color.

Doses of 250 mg. and 500 mg. of the purified green oil (No. 1) per kilogramme of weight respectively were administered to two cats through the stomach-tube without inducing perceptible effects. The following experiment may be described in some detail:

December 24, 1915, cat in poor condition, weight 1.4 Kg.

11:32 A.M., administered 850 mg. of purified green oil (No. 1) per kilogramme through a stomach-tube.

11:56, nausea.

11:57, emesis. (Note promptness with which emesis follows nausea.)

In order to determine so far as possible whether emesis had been due to contaminating strophanthin, which would have had to be absorbed to produce that effect, a test was made according to a method that I have described elsewhere,[4] which consists in determining the fatal dose of strophanthin by intravenous injection. Had strophanthin been absorbed from the gastro-intestinal tract less than the normally fatal dose would have been required by intravenous injection to kill the animal, but since it required the full normally fatal dose it is fair to conclude that emesis had not been due to strophanthin, but to the oil alone. This is the first instance in which it has been shown (so far as I am aware) that oil of strophanthus devoid of traces of strophanthin caused emesis in such small amounts, and it is the only instance in my series of experiments even where larger doses were given.

A cat received 0.25 Cc. (225 mg.) of purified yellowish oil (No. 4) per kilogramme of weight through a stomach-tube, and a second cat received twice as much relative to its weight. There was no perceptible effect in either case. Both cats ate small pieces of meat greedily at intervals of an hour for three hours. Two experiments deserve detailed consideration.

January 5, 1916, cat, weight 2.3 Kg.

2:38 P.M., 1250 mg. purified yellow oil (No. 4) per kilogramme through stomach-tube.

3:38 P.M., animal perfectly normal; excited when shown food.

4:38 P.M., observation exactly as preceding.

January 8, 1916, cat, weight 1.52 Kg.

1:23 P.M., 1250 mg. purified yellow oil (No. 5) per Kg. through stomach-tube.

2:23 P.M., cat arches back and shows satisfaction when stroked; does not eat.

3:33 P.M., observations exactly as preceding.

4:33 P.M., observations exactly as preceding. At this time an associate was requested to examine the cat to see if any abnormal behavior could be detected. The cat appeared absolutely normal.

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[4] Journal American Medical Association, 1910, lv, 746.

Table I gives the results of the later experiments, except one in which a precipitate from tincture of strophanthus, obtained by chilling, was used. This precipitate was so obviously impure that the experiment was discarded, the cat having vomited from a large dose.

TABLE I.

Date	Dose in mg. of oil per Kg. weight.	Specimen No.	Result
12/ 6/'15.	450	2.	Emesis in 23 minutes.
12/ 8/'15.	100	3.	None; ate when fed after 3 hours.
12/ 8/'15.	275	3.	None; ate when fed after 3 hours.
12/24/'15.	250	pure 1.	None; ate when fed hourly, for 3 hours.
12/24/'15.	500	pure 1.	None; ate when fed hourly, for 3 hours.
12/26/'15.	850	pure 1.	Emesis in 25 minutes.
1/ 4/'16.	225	pure 4.	None in 3 hours.
1/ 4/'16.	450	pure 4.	None in 3 hours.
1/ 5/'16.	1250	pure 4.	None in 2 hours.
1/ 6/'16.	1250	pure 5.	None in 3 hours.

DISCUSSION.

The results of the foregoing experiments seem to show that the purified green oil of strophanthus (*Kombé?*) may sometimes cause emesis when administered to cats in doses of 850 mg. per kilogramme of weight, and that doses of 500 mg. per kilogramme may fail to induce any perceptible effect. The results of the experiments would also suggest that when emesis occurs with smaller doses of strophanthus oil it is probably to be attributed to traces of strophanthin, of which as little as 0.2 mg. per kilogramme of weight will cause vomiting after its absorption.

The experiments also show that the pure greenish-yellow oil obtained from *Strophanthus Kombé* of unquestioned authenticity, and an oil of similar appearance and solubility in alcohol, obtained from brown strophanthus seed (*hispidus?*) may be administered to cats by the mouth in doses of 1250 mg. per killogramme of weight without causing the slightest evidence of nausea, or any other perceptible effect.

The seed from which the green oil was obtained may be considered as fairly representative of the strophanthus used by the pharmacists of the United States, and I concede willingly that doses of 500 mg. of the oil per kilogramme of weight may cause nausea and vomiting in man, for it is well known that the sensitiveness of the gastric mucous membrane of the cat and that of man are of the same general order. It becomes necessary, therefore, to determine the amount of the fixed oil that may be taken by man during the therapeutic administration of the tincture of strophanthus, and to compare this with the amount probably required to induce nausea and vomiting.

A tincture of strophanthus was prepared from the commercial ground seed (that which yielded the green oil used in my experiments) according to the pharmacopœial directions. It was of a milky appearance and when chilled to a temperature of about 0° C. it deposited a copious whitish precipitate containing a little of the green fixed oil.

Ten Cc. of the filtered, chilled tincture were evaporated on a water-bath, and from the residue thus obtained there was extracted green fixed oil that weighed 0.046 Gm. When to this was added an aliquot part of the fixed oil obtained from the precipitate formed during chilling, the total amount of fixed oil in the recently-prepared tincture was found to be 0.62 w/v percent. That in the filtered, chilled tincture was 0.46 w/v percent.

The amount of fixed oil that might be present in an official tincture prepared from the official strophanthus supplied by Professor Rusby was calculated as follows: Five Cc. of the oil were shaken with 65 Cc. of 95 percent alcohol, which dissolved about 1 percent of its volume of the oil, and 35 Cc. of water were added. The mixture became creamy in appearance, owing to the precipitation of the oil, leaving a supersaturated solution of the oil in a menstruum similar to that used in making the official tincture of strophanthus The solution, or mixture, was then filtered through paper previously moistened with alcohol and water in the proportion used for making the solution. The filtrate was quite milky in appearance, owing to the formation of extremely small globules of the oil that passed through a hard filter-paper.

On evaporation the solution yielded 0.38 percent of oil. A little of the oil was precipitated in larger globules when the mixture was chilled to about 0° C., and when filtered it contained 0.24 percent of the fixed oil.

The lower content of oil in this case than in that of the tincture is due to the fact that the yellow oil is far less soluble in 95 percent alcohol and in alcohol of lower percentages than is the green oil present in the seed used for making the tincture.

Accepting the higher percentage of fixed oil as fairly representative of that present in ordinary tincture of strophanthus, we may calculate the amount present in the average therapeutic dose of the tincture, which is 0.5 Cc., or about 0.0075 Cc. per kilogramme of body weight for a man of average size. Sixty-two hundredths of 1 percent of this dose is equal to 0.0000465 Cc., or, roughly, one-twentieth of a milligramme, which is, therefore, the amount of the fixed oil present in an ordinary therapeutic dose of the tincture per kilogramme of body weight, or one ten-thousandth of the amount required to cause nausea and vomiting in the cat, relative to the size.

As a matter of fact, we have seen that each of two animals received much larger doses of oil obtained from *Strophanthus Kombé* and from a specimen of brown seed (*hispidus?*), and not less than 60,000 therapeutic doses of a tincture of the latter would be required to furnish the amount of oil that was administered to a cat without inducing any symptoms whatever. The presence of the fixed oil does appear to render the tincture of strophanthus opalescent, and for the sake of pharmaceutical elegance the removal of the oil from the seed before making the tincture may be desirable, but there is no justification for the claim that this removal of the oil is necessary from a therapeutic standpoint.

SUMMARY.

1. The pure green oil of strophanthus (*Kombé?*) is apparently capable of causing nausea and vomiting when administered to cats in doses of 850 mg. per kilogramme. The greenish-yellow oil obtained from an authentic specimen of *Strophanthus Kombé* failed to induce any symptoms when administered to a cat through a stomach-tube in a dose of 1250 mg. per kilogramme.
2. The tincture of strophanthus contains only traces of fixed oil (0.24 to 0.62 percent), and the average therapeutic dose of the tincture contains an amount of the oil corresponding to less than one ten-thousandth of that required to cause nausea and vomiting in the cat, relative to the weight.
3. No evidence that is worthy of mention has ever been obtained (so far as the writer is aware) in support of the claim that the oil present in tincture of strophanthus contributes to the nauseant and emetic actions sometimes seen after the *therapeutic* use of the tincture.
4. Oil of strophanthus, obtained by shaking the powdered seed with petroleum benzin, filtering and evaporating, is likely to contain traces of strophanthin, which is an exceedingly active emetic.
5. The oil present in tincture of strophanthus renders the latter opalescent, and its removal from the seed previous to the preparation of the tincture results in a more sightly preparation, but this is of pharmaceutical—and not of therapeutic—importance.

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THE RAPID SEPARATION OF HEROIN AND MORPHINE.

BY JAMES M. DORAN.

The separation of heroin and morphine when present in solution in small amounts has caused the writer some difficulty in times past, not only in making quantitative determinations of each, but even in determining their presence qualitatively.

This separation becomes of peculiar importance because of the fact that the act of Congress, approved December 17, 1914, popularly known as the Harrison Anti-Narcotic Law, provides in Section 6, among other things, for the exemption of certain preparations containing not more than one-fourth of a grain of morphine nor more than one-eighth of a grain of heroin per fluidounce, or if solid or semi-solid in one avoirdupois ounce, provided such preparations are in fact medicines and not preparations for the purpose of evading the intentions and provisions of the act.

Many preparations have been examined in the laboratory of the Bureau of Internal Revenue which have been found to contain both morphine and heroin, besides other alkaloids, and in many cases in amounts very close to the exemption limit.

The usually-accepted method of separating heroin and morphine is based upon the solubility of the free base heroin, from an ammoniacal solution, in ether, morphine being relatively insoluble and remaining in the aqueous solution. Experience with this procedure has not been very satisfactory. The ordinary ether which contains up to four percent of ethyl alcohol carries morphine with it on account of the solubility of the free base morphine in ethyl alcohol.

The result is that the presence of morphine in the heroin extraction not only vitiates the quantitative result, but, in the case of very small amounts of heroin being present, the qualitative detection is rendered very difficult, if not entirely impossible. The use of absolute ether did not prove any more satisfactory. The heroin extraction contained some morphine, possibly due to the solution of some of the aqueous solution containing the free morphine in the ether.

In addition to these factors and possibly some others, objection is also made to the necessity of four or five extractions to get out all of the heroin, and the sources of error due to the necessity of drawing off the aqueous solution and transferring back to the separatory funnel after each extraction.

Any use of an extraction method in which a fixed alkali hydroxide is used to free the alkaloid base and hold the morphine in solution as alkali morphinate is valueless so far as the heroin is concerned, as it is almost immediately hydrolyzed into morphine by splitting off of the diacetyl radicle.

The problem seemed to be to find a solvent which would extract the heroin from the morphine in a fairly pure state and leave the morphine in such condition that it could be determined later. Chemically pure carbon tetrachloride proved to be such a solvent, and some of the details of its use are presented here. It dissolves the free base heroin very readily, and, while morphine is dissolved by it very slightly, the amount of solvent used is small and the length of time required for the solution of the heroin is so short that the amount of morphine taken up by the carbon tetrachloride is negligible.

In the experimental work no morphine was found in the heroin residue. Settling of the solvent is rapid, owing to its high specific gravity, and there is practically no emulsion formed.

The advantage of an immiscible solvent with these properties is obvious when a number of determinations are to be made.

Briefly the method used for separating and determining heroin and morphine is as follows:

Take of the sample a portion representing not over 0.2 gramme of either heroin or morphine: if tablets, dissolve in water slightly acidified with hydrochloric acid; if solid matter, treat with water acidified with dilute HCl and filter; if an alcoholic solution, make very slightly acid with dilute HCl and evaporate off the alcohol before proceeding.

Transfer the solution of the salts of the alkaloids to a separatory funnel, preferably of the Squibb type, neutralize with NH_4OH and make alkaline with 6 to 8 drops of NH_4OH (1 to 1). Add 25 Cc. CCl_4, shake, let stand, and draw off through a 7-cm. dry filter paper into a tared dish. Repeat the extraction twice, making three extractions in all. Evaporate on steam-bath to dryness, heat in oven at 100° C. for not over 10 minutes, cool, and weigh as heroin. The amount of heroin may be further checked by taking up in an excess of N/25 H_2SO_4, heating to effect complete solution, and titrating the excess of acid with N/25 NaOH, using methyl red as an indicator.

The weighed residue of heroin can be tested qualitatively if desired.

It is best done by taking it up in about 1 Cc. of N/10 HCl, placing a drop of this solution on a slide, and adding a drop of 5 percent platinic chloride solution. An amorphous yellow precipitate is formed, and, when viewed under a microscope, very characteristic crystals of the heroin platinic chloride appear within a few minutes. This crystal form has been described by Putt,[1] and is to be recommended as an excellent identification of the alkaloid heroin. Color tests may also be made on the residue, using Froehde's and Marquis's reagents.

For the determination of the morphine remaining as the free base in the ammoniacal solution the iso-butyl alcohol-chloroform extraction method of Dohme[2] is recommended. It has been found to be quick, satisfactory as to manipulation, and to remove practically all of the morphine. The procedure is as follows: The ammoniacal morphine solution remaining after the heroin has been removed is extracted with about 30 Cc. of iso-butyl alcohol-chloroform (1 to 1) in the same separatory funnel, and the extract drawn off through a dry 7-cm. filter paper into a thick-walled flask. This extraction is repeated until the morphine has been removed from the mother liquor; three extractions will usually suffice. The flask is placed on a steam-bath and the $CHCl_3$ distilled off. When the $CHCl_3$ has been driven off, suction is applied and the iso-butyl alcohol is distilled off under diminished pressure. An intermediate suction flask serves to condense the iso-butyl alcohol, which may be recovered for use again by a redistillation. The residue of morphine is taken up with an excess of N/25 H_2SO_4, heated to insure complete solution, and the excess titrated with N/25 NaOH, using methyl red as an indicator.

For the qualitative detection of morphine, in addition to the well-known color reactions, the characteristic crystals of morphine precipitated with iodine, as seen under the microscope, are very distinctive, and the reader is referred to Putt (see above) for further details of the test. The writer's experience has been that 15 percent of morphine present vitiates the heroin platinic chloride crystals test, and, *vice versa,* the presence of 50 percent of heroin prevents the formation of the morphine-iodine crystals. These facts, together with the well-known weaknesses of the color reactions for identification of these alkaloids when not in a pure state, emphasize the necessity for obtaining fairly pure residues even for qualitative detection.

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[1] J. I. and E. C., vol. 4, No. 7.

[2] Jour. A. Ph. A., vol. iv, No. 1, p. 85.

In the experimental work the salts used, morphine sulphate, heroin, and diacetyl morphine hydrochloride, were the ordinary commercially pure salts as sold by the trade, and no attempt was made to further purify them. Commercial morphine sulphate, while it is considered a fairly pure commercial product, nevertheless contains a small amount of the other alkaloids of opium, principally codeine. This fact probably accounts for some of the discrepancies of the analyses other than those due to analytical errors.

Following are some of the results obtained:

	Salt taken		Salt found	
	Morphine sulphate, Gm.	Diacetyl morphine hydrochloride, Gm.	Morphine sulphate, Gm.	Diacetyl morphine hydrochloride, Gm.
1......	0.0404	0.0809	0.0409	0.0820
2......	0.1620	0.0806	0.1607	0.0808
3......	0.1620	0.0806	0.1622	0.0785
4......	——	0.0809	——	0.0793
5......	0.0500	0.0500	0.0485	0.0471
6......	0.0500	0.0500	0.0470	0.0467

In titrating the heroin residue and using the factor 1 Cc. N/25 $H_2SO_4 = 0.01622$ Gm. heroin hydrochloride or diacetyl morphine hydrochloride, which was the salt used, it was observed that the result was about 5 percent below the weight of the residue if calculated as the hydrochloride, and also bore the same relation to the amount of the salt weighed out. This matter was taken up by Harris and Clover,[3] who showed that the salt on the market was monohydrated. Shaefer[4] is also quoted as stating that the only salt found on the market was monohydrated. This should be remembered if calculating the amount of commercial heroin hydrochloride present from the titration figures: 1 Cc. N/25 $H_2SO_4 = 0.01694$ Gm. heroin hydrochloride, or diacetyl morphine hydrochloride, monohydrated.

Carbon tetrachloride readily dissolves the free bases of dionin (ethyl morphine), peronin (benzoyl morphine), and codeine (methyl morphine).

If codeine, heroin, and morphine are present, the codeine and heroin can be removed by CCl_4 and weighed. The morphine can then be determined by the iso-butyl alcohol-chloroform extraction. Another portion of the solution may then be treated with 10 Cc. of 2N NaOH, which completely hydrolyzes the heroin to morphine without the use of heat.

The codeine may be extracted from the alkaline solution by CCl_4 and weighed, the alkaline liquor containing the other alkaloids is acidified, then made alkaline with NH_4OH, and the total morphine determined. The increase of morphine is due to heroin, and it may be calculated. However, any complex mixture of alkaloids, as is well known, requires special treatment, and the foregoing remarks apply only to the simple mixtures.

Two hours is ample to complete the determination of heroin and morphine as outlined above, and the procedure is well adapted to routine qualitative and quantitative examinations.

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[3] Jour. A. Ph. A., vol. iv, No. 3, p. 291.

[4] Amer. Jour. Pharm., 82, p. 220.

SELECTION AND TECHNIC OF AN APPROPRIATE METHOD FOR ESTIMATING PHENOL.

BY JOHN W. FORBING.

Text-books, technological treatises, and chemical literature in general have given considerable space in presenting methods and modifications of methods for the estimation of phenol, or carbolic acid. Without exception these methods are instructive and ingenious and more or less accurate. A summary, together with brief criticisms, makes interesting reading. There is some use, practical as well as pedagogical, in making a selection from these methods which will prove appropriate to equipment and object in view. The determination of choice rests ultimately on three factors: accuracy, time, and economy. The methods may firstly be divided into two groups: gravimetric and volumetric.

Gravimetric
- Landolt: production of tribromphenol and weighing per se.
- Riegler: production of an insoluble diazo-acid, $C_6H_4NO_2C_6H_4OH$ with para-diazonitraniline, drying at 100° and weighing.

Volumetric
- U. S. P. (Koppeschaar).
- Koppeschaar, Sutton Modification.
- Koppeschaar, Sutton Modification, with author's modification.
- Iodometric method, Messinger and Nortmann.
- Schwalbe's Diazo method.
- Sodamide Method, S. B. Schryver.

The Landolt method of the volumetric group is not to be considered efficient, in that its operation is tedious and requires too much time with ordinary equipment. From an instructive standpoint, however, it has merit. It teaches that bromine can be made to enter into combination with phenol to form tribromphenol quantitatively. Further, the Landolt method is of historical interest. It formed the basis for the more rapid volumetric methods which followed its introduction.

The Riegler gravimetric method (Chem. Centr., 1899, 322) is ingenious but less accurate than that of the Landolt, with no advantages. It is of some value in the dye industry and of special interest to the research worker. It accentuates the fact that the field of research, which is to produce an insoluble phenol derivative for the purpose of gravimetrically estimating carbolic acid, is a very barren and unproductive one at the most.

The U. S. P. method has all the essentials of efficiency when a large number of estimations are to be made, or samples to be assayed are to be depended upon to arrive at frequent intervals. For the worker who has occasion rarely to estimate phenol the official method has disadvantages from the viewpoint of economy, and no advantages, even in time. Therefore, for the worker in question, who is by no means in the minority, the U. S. P. method is not to be selected. It requires a preparation of a N/10 bromine V. S., which in turn requires standardization, and sodium bromate, an article rarely carried in stock, necessitating, in consequence, both time and expense.

For the requirements of the workers above described, the Sutton modification as given on p. 393, "Volumetric Analysis," 9th ed., would answer very nicely were it not for the fact that it leaves too many loop-holes for error.

The iodometric method devised by Messinger and Nortmann (Ber., 1891, 2753; J. Soc. Chem. Ind., 1890, 1070) is based on the bromine method; obviates the use of bromine by substitution of iodine. It introduces, while doubtless tending to do otherwise, as much detail as any of the Koppeschaar modifications; does not save time, and is of uncertain accuracy.

Schwalbe's Diazo-Method, applicable for phenol volumetric estimations (Ber. 38, 3072, 1905; Bucherer, Z. Ang. 20, 877, 1907), is used to some extent in the German technical laboratories. It is possibly based on the Riegler method and owes its origin to the facility with which phenols unite with diazo-solutions to form oxyazo dye products. The following is a well-known type of the reaction:

$$\underset{\text{Diazobenzolchloride}}{C_6H_5N_2Cl} + C_6H_5OH + 2NaOH = \underset{\text{Oxyazobenzol}}{C_6H_4N_2C_6H_4ONa} + NaCl + 2H_2O$$

p-Nitrobenzoldiazonium chloride serves best for the titrating solution. N/10 V. S. is produced from p-nitraniline and standardized with resublimed beta-naphthol. This method, interesting to the organic chemist, has a limited technological application, but is of little use to the general and pharmaceutical chemist.

The sodamide process, originated by S. B. Schryver (J. Soc. Chem. Ind., 1899, 553), takes advantage of the reaction between hydrocarbons containing hydroxyl groups, and $NaNH_2$, liberating NH_3, which is collected and titrated with acid. A type of the reaction is the following:

$$NaNH_2 + C_6H_5OH = NH_3 + C_6H_5ONa$$

The method is decidedly applicable and especially praiseworthy for the estimation of phenol in the presence of hydrocarbons which are attacked by bromine. It has its specialized application, but it is not to be thought of for a simple phenol assay.

For phenol assays the author proposes that a stock solution of C. P. NaOH, 40 percent, be kept on hand. This solution is an inexpensive one, and may serve many purposes; preparation of 5 percent reagent, for making volumetric solutions, Kjeldahl estimations, etc. Due to its concentration, the carbonate formed unavoidably is rendered less soluble than in more diluted solutions; is precipitated, and thus by decantation a solution of comparatively pure NaOH may at any time be easily obtained. From this solution 100 Cc. of N/1 NaOH is prepared. 10 Cc. of the 40 percent solution is run from a burette into a 100 Cc. graduated flask and water added to mark. This solution, which approximates a N/10 NaOH V. S., is titrated with N/10 H_2SO_4. A series of titrations are made, using as indicator methyl-orange, and the mean taken. Thus, for example, if 10.7 Cc. of the soda dilution is required to neutralize 10 Cc. N/10 H_2SO_4, then 10.7 Cc. of the 40 percent stock solution of C. P. NaOH diluted to 100 Cc. will produce 100 Cc. of N/1 solution. The N/2 NaOH, thus produced, enables us to measure off positively known quantities of pure NaOH.

A solution of NaOH, when treated in the cold with bromine, unites according to the following equation:

$$6NaOH + 3\,Br_2 = NaBrO_3 + 5\,NaBr + 3\,H_2O$$

If $NaBro_3$ and NaBr be treated, according to the molecular proportions represented in the above equation, with HC_1, the entire equivalent of bromine is liberated.

$$NaBrO_3 + 5NaBr + 6HCl = 6\,NaCl + 3\,H_2O + 3\,Br_2$$

Thus:

$$6\ NaOH = 3\ Br_2$$
$$(240)\quad(480)$$
$$1\ Cc.\ N/1\ NaOH = 0.04\ Gm.\ NaOH = 0.08\ Br.$$

As we depend on nascent bromine derived from this source to act on the phenol to be estimated, the reaction was checked as follows:

5 Cc. N/1 NaOH was run from a burette into a 50 Cc. conical beaker with lip, and pure bromine added by means of a pipette. This was agitated and sufficient bromine added to produce a solution having a decided brownish color. The excess of Br was then driven off by boiling until the solution was perfectly colorless. This solution was washed into a 100 Cc. glass-stoppered flask containing 5 Gms. KBr (KBr being added to increase the solubility of bromine liberated later). The washings complete should make a solution measuring approximately 75 Cc. 5 Cc. HCl was added and care taken to replace stopper immediately. The flask was shaken and 5 Cc. of a solution (1 in 20) KI added, stopper replaced, flask shaken, and the iodine, liberated as represented in the following equation, was titrated with N/10 $Na_2S_2O_3.5H_2O$.

$$2\ KI + Br_2 = 2\ KBr + I_2$$
$$2\ Na_2S_2O_3 + I_2 = 2\ NaI + Na_2S_4O_6$$

The mean of a series of titrations was 50.2 Cc., N/10 $Na_2S_2O_3$, using starch solution as indicator.

$$1\ Cc.\ N/10\ Na_2S_2O_3.\ 5\ H_2O = 0.008\ Gm.\ Br.$$

Found .... 0.008 × 50.2 = 0.4016 Gm. Br.
Theoretical 0.4000 Gm. Br.

Calculation for theoretical:

$$1\ Cc.\ N/1\ NaOH = 0.04\ Gm.\ NaOH$$
$$5\ Cc.\ N/1\ NaOH = \underset{NaOH}{0.20\ Gm.} = \underset{Br.}{0.40}$$

This preliminary work gives assurance that the N/1 NaOH will carry and liberate the theoretical amount of Br within limits of negligible error.

The next step is the preparation of a phenol solution 10 Cc. of which will contain supposedly 0.1 Gm. phenol. In our laboratories we keep on hand a 90 percent stock solution of carbolic acid which is used for the determination of the phenol coefficients of disinfectants. This solution was used for assay. 1.11 Gm. diluted to 100 Cc. produces 100 Cc. of solution, 10 Cc. of which equals 0.1 Gm. phenol. The ordinary liquid phenol of the Pharmacopœia, any phenol solution, or crystals may, of course, be made into such a solution. 10 Cc. of this solution is placed in a 200 Cc. glass-stoppered flask. 7 Cc. of the N/1 NaOH is run from a burette into a 50 Cc. conical beaker, treated with bromine as described, boiled and washed into the flask containing the phenol. 5 Gm. KBr is added, dissolved, and contents cooled by affusion of cold water. 5 Cc. HCl is added quickly and the flask stoppered at once and shaken at intervals for 15 minutes. The bromine liberated according to the equation previously given unites with phenol to form insoluble yellow-colored 2-4-6 tribromphenol.

$$C_6H_5OH + 3\ Br_2 = C_6H_2Br_3OH + 3\ HBr.$$

5 Cc. of a solution of KI (1 in 20) is then added. The bromine not taken up by the phenol liberates its equivalent of iodine, the flask with washings and addi-

tions contains about 150 Cc. of fluid. N/10 $Na_2S_2O_3.5H_2O$ is run in until but faint color of iodine remains, starch solution added and titration completed.

Calculation:

$$6\ NaOH = 3Br_2 = 3\ I_2 = 6\ Na_2S_2O_3 = C_6H_5OH$$

$$\begin{array}{ll} 6\,)\underline{240} & 6\,)\,\underline{94} \\ \quad 40 & \quad 15.66 \end{array}$$

1 Cc. N/1 NaOH = 0.01566 Gm. phenol.
7 Cc. = 0.015667 = 0.10962 Gm. phenol.
1 Cc. N/10 $Na_2S_2O_3.5\ H_2O$ = 0.001566 Gm. phenol.

6.04 Cc. (the means of a series of titrations) were required for excess of iodine, or excess of bromine in terms of phenol would be $6.04 \times 0.001566 = 0.00946$ Gm. phenol, which subtracted from the total amount equivalent to 7 Cc. N/1 NaOH, or 0.10962, is 0.10016 Gm., or amount of phenol present in 10 Cc. of the phenol dilution. 10 Cc. of the phenol solution is equal to $1.11 \times 10 = 0.111$ Gm. sample used for assay.

$$0.1002 : 0.111 :: X : 100$$
$$X = 90.28 \text{ percent}$$

This analysis was checked by that given in "Essentials of Volumetric Analysis," Schimpf, 2d ed., which is essentially the same as U. S. P. A series of analyses by the U. S. P. method (Schimpf) gave 90.8 percent phenol.

RÉSUMÉ.

Author's Koppeschaar Modified Method, Phenol	90.28 percent
U. S. P.	90.80 percent

Creighton University Laboratories, Omaha

PRESENCE OF OXYGEN IN RANCID FATS.

It is well known that many fats, such as butter, lard, olive oil, and oil of sweet almonds, when exposed to the air, and becoming rancid, absorb oxygen. This is not, as has been stated, due to the presence of an oxidase in the fats. The author finds that after having been heated to a temperature of 120° C. they absorb oxygen as readily, on exposure to the air, as they do previous to being so heated. If, however, they are heated to 200° C. the property of absorbing oxygen is lost. Rancid fats are found to give the characteristic blue color with tincture of guaiacum and blood or hæmoglobin solution, similar to that given by hydrogen peroxide, or oxidized oil of turpentine. In the presence of a peroxidase, therefore, the oxygen, combined by the rancid fats, is liberated. The test may be used to determine the freedom of fats from rancidity. About 10 Gms. of the material, if butter or lard, previously melted, is treated with 4 or 5 drops of an aqueous dilution of blood, or of 3:100 aqueous solution of hæmoglobin, 10 drops of 5:100 solution of guaiacum resin in alcohol 70 percent, and 10 mils of distilled water. After thorough shaking together for one minute the vessel is corked and set aside. Fresh fats or oils free from rancidity will show no color. With those that are rancid the emulsion will show a more or less pronounced blue tint proportional to the degree of rancidity. When the change in the fat is only slight, a sharper and more delicate reaction is obtained by adding to the emulsion an equal volume of alcohol 95 percent. The acidity of rancid fats does not interfere with this reaction, and its removal does not lessen it. Fresh oils exposed to the air will give the blue color in twenty-four to forty-eight hours. Lard and butter require longer, not showing any reaction until after four or five days' exposure, by which time the rancid odor will be very perceptible.—J. Vintilesco and A. Popesco (*J. Pharm. Chim.*, 1915, 12, 318).

HYDROLYSIS OF SOME OF THE COMMON VEGETABLE OILS.*

BY W. F. RUDD, RICHMOND, VA.

The paper presents results of experiments relating to the hydrolysis of several vegetable oils. In the first series of experiments, tabulated, the oils were treated with an alkali, in the next with an enzyme, and in the third with both alkali and enzyme. One of the objects of these investigations is to determine, if possible, whether the relative saponification factor will convey a knowledge of their relative digestibility.

The use of the vegetable oils both for food and as medicinal agents dates back as far as recorded history goes. The recovery of these oils on a commercial scale has made necessary the use of technical appliances ranging from the simplest contrivances to the very elaborate machinery that is being used to-day. Pliny describes in detail apparatus and processes employed in the manufacture of olive oil in his time. The Chinese have employed for centuries the same series of operations which are now followed in the most advanced oil mills of modern times, viz., bruising and reducing the seed to meal under an edge tool or stone, heating the pulp in open pans, and pressing out the oil in a wedged press.

The invention of the hydraulic press in 1795 by Joseph Bramah effected a revolution in the oil industry, introducing a new, easily-controlled, and an almost unlimited source of power.

A study of some of the properties of oils is prompted by the rapid increase in their use commercially. The fact that in the year 1912 the cotton-seed oil products in the United States were worth $147,680,000 is a matter of much more than passing interest. Industries of this size are employing the best-trained chemists, as their success or failure is, in many instances, largely dependent upon laboratory findings. In few fields of endeavor is the chemist's work of more direct value to the average citizen. The vegetable oil chemist has arrived and is now reckoned with. The future seems to promise a great deal more for him.

Among the many lines of investigation which the oils offer, the writer feels that perhaps not one is of more interest than a study of the relative ease of saponification among them. The nature of the hydrolysis products of the individual oils has been very thoroughly studied by a number of men. We have been able to find little work, however, on the comparative hydrolysis of the common oils.

The experiments which we desire to report in this paper were arranged to determine, if possible, which of the common oils would saponify most readily under a given set of conditions. There may be some very practical relation between ease of saponification and digestibility. When the former has been definitely determined, feeding experiments covering a very wide range should be undertaken to establish this point. We used samples of a rather high degree of purity after having found their ordinary constants to be well within prescribed limits. We believe that the results obtained represented fairly what we should expect from good grades, ordinarily purchased in the open market.

In the first series of experiments the oils were treated with alkali only, in the second with some enzyme, and in the third with both alkali and enzyme.

The method followed in the first series was to determine amount of free acid in each sample and then bring them all to the same acidity by addition of oleic acid, rechecking each sample. The saponification number was taken, and from this the amount of potassium hydroxide necessary to saponify a given amount was calculated. Check samples of each oil were carefully weighed, and to each was added the calculated amount of alcoholic potash solution, plus exactly a 20 percent excess. Samples were agitated in the same amount, and heated to boiling for five minutes. The excess of KOH solution was titrated with half normal HCl solution, phenolphthalein being used as indicator. A blank was, of course, run in every case. As may be expected, all the oils—corn, cotton-seed and olive—were completely saponified in this experiment.

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* Read before Scientific Section, A. Ph. A., San Francisco meeting.

In the next group the conditions were duplicated, except that the temperature of 60° was maintained for the same length of time. The results are given in the following table:

Oil	Weight (grammes)	Percent saponified	Average
Olive	4.1462 4.2634	83.857 81.366	82.611
Cotton-seed	4.383 4.3804	84.925 83.919	84.422
Corn	4.2244 4.5532	83.521 83.029	83.275
Olive	4.3282 4.3882	79.776 81.041	80.408
Cotton-seed	4.3614 4.363	87.653 85.120	81.386
Corn	4.627 4.540	87.196 87.651	87.423
Olive	4.3856 4.3586	74.276 79.616	76.946
Cotton-seed	4.3876 4.3463	84.898 86.351	85.624
Corn	4.526 4.505	86.102 86.881	86.491

Average percent saponified	Olive	79.988
	Cotton-seed	85.477
	Corn	85.730

In this series the oils were heated for two and a half hours at a temperature of 37.5°.

Olive	4.1522 3.973	86.91 89.848	88.379
Cotton-seed	4.0522 4.0108	91.283 86.389	88.886
Corn	4.1502 4.1738	90.983 87.879	89.428
Olive	4.3486 4.3734	87.469 81.264	84.366
Cotton-seed	4.1598 4.2174	86.379 85.085	85.732
Corn	4.3408 4.3154	86.775 91.266	89.050
Olive	3.2526 3.7146	Broken 76.581	76.581
Cotton-seed	4.3136 4.0054	86.602 87.307	86.954
Corn	4.0932 3.9788	88.261 88.574	88.417

Oil	Weight (grammes)	Percent saponified	Average
Olive	4.1206	86.71	86.722
	3.862	86.734	
Cotton-seed	4.2098	85.371	85.631
	4.1890	85.891	
Corn	4.1830	84.506	84.501
	4.0448	84.496	

Average percent saponified	Olive	85.073
	Cotton-seed	86.788
	Corn	87.849

A close inspection of the figures in these tables indicates, but by no means proves, that under the influence of alkaline solutions the oils hydrolyze in the following order: corn, cotton-seed, and olive. The results in the individual cases are not consistent, but the variations are not such as to warrant an entire discredit of the averages under each table. It will be observed that fourteen tests were made with each oil.

In the next series of experiments we attempted to compare the rate of hydrolysis of the same oils under the influence of a fat-splitting enzyme. The enzyme solution was prepared by dissolving 2 Gms. of pancreatin in 100 Cc. of water. Five Cc. of this solution was used in each determination. Ten samples of each oil were run in this series, and the appended table gives the results in terms of percent of each sample saponified. Experiment number five is omitted in the table, and the average of nine instead of ten is reported, data for number five being inadequate.

The results reported in this table are much more concordant than those in the experiments where alkali is used as the hydrolyzing agent. The percent saponified is much lower, however.

Oil	Weight (grammes)	Percent saponified	Time	Average
Experiment No. 1:				
Olive	3.020	1.850	22 hours	1.850
	3.035	1.850	22 hours	
Cotton-seed	3.019	2.490	22 hours	2.470
	3.000	2.450	22 hours	
Corn	3.001	1.370	22 hours	1.330
	3.002	1.300	22 hours	
Experiment No. 2:				
Olive	3.014	1.570	44 hours	1.590
	3.016	1.610	44 hours	
Cotton-seed	3.007	1.790	44 hours	1.795
	3.016	1.800	44 hours	
Corn	3.005	1.530	44 hours	1.520
	3.022	1.510	44 hours	
Experiment No. 3:				
Olive	3.014	1.740	44 hours	1.710
	3.020	1.690	44 hours	
Cotton-seed	3.028	2.040	44 hours	2.035
	3.003	2.030	44 hours	
Corn	3.017	1.770	44 hours	1.775
	3.027	1.780	44 hours	
Experiment No. 4:				
Olive	3.024	2.110	22 hours	1.980
	3.030	1.860	22 hours	
Cotton-seed	3.034	2.590	22 hours	2.340
	3.009	2.090	22 hours	
Corn	3.009	1.410	22 hours	1.405
	3.023	1.400	22 hours	

Oil	Weight (grammes)	Percent saponified		Average
Experiment No. 6:				
Olive	3.026	1.400	44 hours	1.400
	3.020	1.400	44 hours	
Cotton-seed	3.020	1.760	44 hours	1.765
	3.036	1.770	44 hours	
Corn	3.011	1.740	44 hours	1.710
	3.041	1.680	44 hours	
Experiment No. 7:				
Olive	1.508	5.830	22 hours	5.900
	1.517	5.970	22 hours	
Cotton-seed	1.518	5.690	22 hours	5.760
	1.525	5.840	22 hours	
Corn	1.517	3.440	22 hours	3.610
	1.522	3.790	22 hours	
Experiment No. 8:				
Olive	1.510	3.320	22 hours	3.280
	1.502	3.250	22 hours	
Cotton-seed	1.509	3.210	22 hours	3.630
	1.508	4.060	22 hours	
Corn	1.514	2.880	22 hours	2.910
	1.524	2.950	22 hours	
Experiment No. 9:				
Olive	1.521	3.140	22 hours	3.100
	1.527	3.070	22 hours	
Cotton-seed	1.519	3.720	22 hours	3.710
	1.524	3.700	22 hours	
Corn	1.506	3.410	22 hours	3.410
	Lost	Lost	22 hours	
Experiment No. 10:				
Olive	1.501	6.050	44 hours	5.930
	1.510	5.820	44 hours	
Cotton-seed	1.507	4.950	44 hours	4.900
	1.513	4.850	44 hours	
Corn	1.501	3.960	44 hours	3.720
	1.508	3.480	44 hours	

Average percent of each oil as per this table:		
	Olive	2.970
	Cotton-seed	3.150
	Corn	2.370

It would appear that under the conditions as followed in these experiments cotton-seed oil is hydrolyzed more readily than the others. Not only is the average higher, but the percent is higher in thirteen out of the eighteen individual cases.

In the last series which we are reporting conditions similar to those in the intestine were attempted. Known weights of the same oils were carefully neutralized, and an amount of standard alkali proportional to the weight of oil was added to each sample.

Three samples of pancreatin, each the product of a different manufacturer, were used, each oil being treated with each enzyme, and with alkali alone as blanks. The samples were all agitated uniformly and kept at a temperature of 36° to 37.5° for twenty-three hours. The excess of alkali was then titrated with tenth-normal acid. We report averages only in this part of the work, as the complete table is more or less involved.

Average percent of added alkali consumed by—

Olive oil	41.800
Cotton-seed oil	38.800
Corn oil	44.300

Reported in terms of activity of the three enzymes used, we have the following:

Average percent of alkali consumed in presence of—

Enzyme No. 1	63.300
Enzyme No. 2	38.600
Enzyme No. 3	38.700
Oils only	15.900

SUMMARY.

The writer and his assistant, Mr. W. L. Irwin, to whom he is greatly indebted for much of the routine work herein reported, do not feel warranted in drawing any general conclusions from the experiments until a great many more of the same general nature have been run on these oils. This we propose to do as soon as possible, hoping to get a sufficient number of close checks to warrant some authoritative statement.

The whole investigation has proved most interesting, and we would be glad to have others take up the same task. The routine work is taxing, but we believe that the ultimate findings will be worth the effort.

MAKING GOOD.

Making good—business—is a fight, just like life—a continual struggle. Struggle there always has been and always will be—there must be. Depend upon it and prepare yourself for it, the struggle will be always. Life is activity. When you throw your efforts and your mental attitude in neutral, you'd better call for the undertaker.

Since YOU are all that you have got, you have got to be satisfied with yourself and take yourself for better or for worse and you'd better prepare yourself physically, mentally and morally for the battle.

You can only do this by association with people from whom you can learn something—not from people you have to tell things to. You've got to take care of yourself physically as well as mentally and you will not be physically fit if you have hobnobbed with a lot of going-to-bes and paraded down Main Street all evening in search for a skirt. Then when you get out the next morning, if you do get out, you can't expect to convince a man who takes care of himself that you are right. Better leave those fellows alone; they'll bring you down to their level. If you never see them again that will be soon enough!—*Exchange.*

THE COMMUNITY OF INTEREST OF THE DRUG TRADES IN FOOD AND DRUG LEGISLATION.*

BY J. H. BEAL, URBANA, ILL.

I deem it a considerable privilege to be the bearer of a message of greeting and good-will from the oldest to the youngest pharmaceutical organization of national scope.

For sixty-five years the American Pharmaceutical Association has upheld the best traditions of professional pharmacy, and has justly earned the respectful consideration of every one connected with any division of the many-sided business or art of producing and distributing drugs and medicines.

When the American Pharmaceutical Association was founded the retail apothecary was the principal manufacturer of the medicinal products which he dispensed, and there was no necessity for the separate existence of such a society as yours.

Since that time, and through the operation of causes which I need not discuss, the generalized occupation of the old apothecary has been broken up into groups of specialized occupations, each with an art and technic of its own, and the principal business of the retail pharmacist of the present day is to distribute the products maufactured by others, at best supplemented by the manufacture of simple stock preparations and the dispensing of extemporaneous preparations on physicians' prescriptions.

To attempt to strike a balance between the respective loss and gain of this departure from the practice of the ancient apothecary would require more space than is at my disposal. Whether for good or ill, the change has been made, and we must deal with the situation as it exists.

The American Pharmaceutical Association early recognized the tendency of pharmacy to split up into groups of specialized functions, and, instead of seeking to retain a monopoly of control, has generously encouraged the formation of corresponding special organizations.

The separate existence, then, of such associations as yours, of the National Wholesale Druggists' Association, of the National Association of Retail Druggists, and of other similar national bodies is simply the practical application of the broad and liberal doctrine of the American Pharmaceutical Association; namely, that the special interests of the several divisions of pharmacy can best be conserved by independent organizations especially devoted to such purposes.

The American Pharmaceutical Association is thus fairly entitled to be regarded as the mother association of our national pharmaceutical organizations, and as such retains a lively interest in the welfare and development of each of her children.

The delegation of special interests to the care of special organizations did not, however, complete the mission of the American Pharmaceutical Association. On the contrary, its mission and the reasons for its existence are more important than ever before. Its annual conventions constitute a general congress of pharmaceutical interests, where those who separately represent the various sections of the drug trade can meet upon common ground for the discussion of matters of common concern.

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* Address as delegate from the American Pharmaceutical Association to the National Association of Manufacturers of Medicinal Products, New York City, February 3, 1916.

It is the nexus which binds the separate divisions of pharmacy into one family group. It represents and aims to defend the solidarity of pharmacy, or the community of interest of all who are connected in any capacity with the business of manufacturing and supplying medicinal products.

The principal message which I bring from the American Pharmaceutical Association is to urge your fullest recognition of this community of interest of the family group which that association has so long defended, and that you shall, as far as possible, so order your business policies and other activities as to contribute to the professional and commercial prosperity of the whole confraternity of pharmacy.

The Unique Position of Drugs and Medicines in the Popular Mind.—If you were disposed to forget the community of interest of all of those who have anything to do with the manufacture or purveying of drugs and medicines, a list of the bills introduced at a single session of Congress or at a single session of a state legislature should be sufficient to quicken your memory and enlighten your understanding.

The day has apparently passed by when it was necessary only to provide for the scientific organization of your laboratories, and to maintain an efficient system for the distribution of your products. To-day a third necessity exists, and that is to provide machinery and methods to prevent yourselves from being legislated out of business through the efforts of those good-intentioned but poorly-informed persons whose desire to reform the business of other people is usually in direct proportion to their ignorance of the subjects they propose to regulate.

One reason, and perhaps the principal reason, for the constant menace of adverse legislation grows out of the peculiar position given to drugs by the popular mind, and the consequent disposition to deal with them as if they were altogether separate and apart from other things of utility.

The normal and useful employment of drugs may outmeasure a thousand-fold their abnormal or hurtful employment, but when legislation is proposed their common and proper uses are overlooked and only their occasional evil uses are remembered. In dealing with other material agents there is usually a disposition to discriminate between the good and the bad, but legislation with respect to drugs is usually directed upon the theory that they are either always bad, or always especially liable to be put to bad uses.

The law very properly prohibits the sale or carrying of daggers and other deadly instruments of the same character, but places no restriction upon the manufacture and sale of edged and pointed tools normally intended for lawful uses, even though they might be used for lethal purposes; nor does the report of a homicide with a butcher's cleaver or of a suicide with a pair of shears produce a demand for special legislation restricting the manufacture and sale of these useful implements. In the case of drugs, however, the disposition is exactly the opposite. Let there be a sensational newspaper report of a homicide or suicide committed with the aid of a drug, and immediately there is a flood of bills to prohibit its sale, or to subject it to such restrictions as amount practically to prohibition.

Moreover, this terror of drugs seems to attach to the name rather than to the things themselves: call the drug a fertilizer or paint, or by some other name indicating its use in the common arts or industries, and its deadly significance begins to fade out of the lay mind. When poison legislation is pending, if the point be made that the substance the sale of which is to be restricted is largely used in the arts or industries, the usual course is to amend the bill so as to exempt its sale by tons for industrial employment, and to confine the restrictions to its sale in the drug store, where it is dispensed by grains and ounces. And this restriction of its sale by the druggist who knows how to handle the substance safely, and its unrestricted sale by those who know nothing of its properties, are considered to be a quite proper safeguarding of the public welfare.

The host of ordinances and bills directed against mercury bichloride a year or so ago will illustrate this thought. One of these was a bill introduced into the United States Congress, proposing extremely severe restrictions upon the dispensing of mercury bichloride by doctors and druggists, but placing no restrictions whatever upon its sale or use by other persons. Seemingly it never occurred to the sponsors for this bill that the sale of mercury bichloride under other names or by people unfamiliar with its qualities might be dangerous to the public health.

Drugs should not be discriminated against in legislation simply because they are drugs, and restrictions upon their sale should bear a just proportion to their wrongful use. If a drug is properly employed a hundred thousand times for every time it is wrongfully employed, restrictions upon its sale should be neither greater nor less than upon any other object or thing that has the same ratio of proper to improper use.

Legislation by Subterfuge.—A fondness for law-making has always been a characteristic of the American people, and during the past few decades this disposition has developed into a veritable mania. The newly-elected member of a legislative body says to himself, " What am I here for if not to make laws? " and straightway consults the dictionary or encyclopædia for new subjects to regulate. His constituents apparently have the same conception of his duties, and as a consequence the Congress, state legislatures and city councils are fairly choked with bills to amend old laws or ordinances, or to create new ones, and intended to regulate every conceivable subject.

When the ordinary legislative powers of our written constitutions are not broad enough to meet the demand, we proceed to expand them by subterfuge, or by legislating around the constitutional limitations. That is to say, we frame our legislation in such form as to bring it *nominally* within one section of the constitution and thereby accomplish ends or reach results expressly prohibited by other sections, or so as to accomplish that which no section of the constitution directly authorizes to be done.

No doubt some of the laws which are constitutional in form, but which in fact were expressly designed to accomplish results not contemplated by our written constitutions, are very desirable laws. An example of such legislative subterfuges is the recent Harrison law, or the federal law which professes to levy a tax upon the business of dealing in certain narcotic drugs. In form it is a revenue measure; in fact it is a police measure disguised by the levy of a nominal tax, and without the intra-state policing power which it gives to the federal agents, under the pretence of tax collection, would not be worth the paper it is printed upon as a means of regulating the traffic in narcotic drugs.

The united drug trade more than any other one instrumentality—perhaps as much as all other instrumentalities combined—was responsible for the enactment of the Harrison law, and it is a striking testimonial to the public spirit of the drug trade that it deliberately sought this legislation and has cheerfully accepted the burdens and losses which it imposes for the sake of the general public good. The results of the law have been altogether beneficent, but the fact remains that it is a legislative subterfuge, a law specifically framed to bring it within the powers of Congress to collect a revenue which of necessity must be much less than the cost of collection, and the real intent of which is to regulate the distribution of narcotic drugs within the territorial limits of the several States.

The beneficial effects of the law have been all and more than were anticipated, and its repeal by Congress or its nullification by the courts would be a public calamity. Nevertheless, it must always be a matter of regret that so good a measure with so good a purpose could be enacted only by dodging the evident intentions of the federal constitution.

If constitutional intentions can be evaded or circumvented for beneficent purposes, may they not also be evaded for purposes the reverse of beneficent? All human experience shows that corruptions of free government have always begun in this way, and the problem is one which we would do well to ponder.

Legislation by Administrative Action.—Another species of legislation probably not contemplated by those who devised our system of constitutional government is the making of laws by the fiat of those chosen to administer them.

That administrative officials should be clothed with reasonable discretionary powers in order to make the law effective will not be seriously questioned, but we of the drug trade have seen this discretion used to extend the law far beyond the intention of the law-making body. Under the name of rules and regulations both new prohibitions and new commandments are read into the statute, and under the pretence of interpretation meanings and effects are added that could not have been within the mind of the author of the law nor within the intention of the legislative body which enacted it.

The attempt to read into the written law that which the administrative official thinks ought to be there in place of what is really there is not a new thing in history, but is more vexatious at the present day for the reason that the subjects of modern legislation are far more technical and vastly more complicated than they were a generation ago.

Almost invariably an official justifies the exercise of arbitrary power by pleading that his efforts are directed solely for the public good. Demagogues are smart people and well know how to pick the subjects of experiment so as to appeal to popular prejudice and command popular sympathy. If they want to attack an entire class of medicinal preparations, they do not select a representative member of the class, but the worst example they can find, knowing that if their action is sustained it can be used as a precedent for attacking all other preparations coming under the same *legal category,* although they may be quite different in other respects and devoid of offensive qualities.

The important matter in all such cases is not the particular object which is made the excuse for the exercise of arbitrary power, but the illegal and unconstitutional method employed. If an individual can be denied the right of trial by jury simply because he is a common drunkard and a known derelict, then it will not be long until the rights of decent citizens will be invaded in a similar manner. Small invasions of rights, if unresisted, grow into greater ones. If we do not resent the arbitrary exercise of power with respect to some medicinal preparation which does not quite meet our standard of professional ethics we may live to see the day when the same arbitrary power will be applied to our own more ethical products.

Let us not be deceived by the specious plea of the public good when it is used as an excuse for the exercise of unauthorized official action. The highest public good is that which can be obtained through the operation of well-considered laws, enacted in obedience to enlightened public sentiment, and construed and administered in strict accordance with the intentions of the legislature.

Labels and Therapeutic Properties.—I do not need to cite to a company of manufacturers of medicinal products any illustration of the perversion of the law's meaning by administrative action, or by a forcible reading into the law of some official's personal theories.

I feel that I am well within the bounds of verity and moderation when I assert that, under present conditions, the pharmaceutical manufacturer, after availing himself of the best scientific information obtainable, and after taking the advice of the best legal talent he can procure, cannot label his products with the certain assurance that when they are placed in interstate commerce he will not be haled into a federal or state court, charged with selling an adulterated and misbranded product.

When such a condition exists, there is something wrong, either with the law or with the method of its administration. That a manufacturer or dealer, acting in entire good faith and utilizing every available source of information, should not be able to insure himself against prosecution is a situation never contemplated in the passage of the food and drug laws, whether state or federal.

Those of you who have carefully followed the rulings of administrators of the food and drug laws and the decisions of the courts will have discovered before this that the contention as to the misbranding of a medicinal product is not infrequently a dispute regarding grammatical construction, or a conflict of therapeutic opinion rather than of law or of fact.

As manufacturers of medicinal products you are in a position to know that in the present stage of medical science the therapeutic value and use of a drug is largely, or mainly, a matter of opinion based upon clinical observation, and that therapeutic opinions differ widely and radically, not only among the different so-called schools of medicine, but among physicians of the same school.

This is true of not merely a few drugs and drug products, but of a majority of them, and especially of those which do not show the presence of constituents of pronounced physiological activity. There is perhaps no single drug known to the profession whose value is so thoroughly established that it has not been denounced either as without value or as dangerous by practitioners of experience and repute, or has not been condemned by works on materia medica and therapeutics which are accepted as authoritative by large numbers of the medical profession. The manufacturer and dealer are not interested in these professional controversies, but claim the right to supply each or all of the contending factions, and the general public, with their favorite remedial agents prepared according to the best dictates of pharmaceutic science.

Possibly as part of its inheritance from its ancient affiliation with theology, the medical profession still retains something of a spirit of intolerance, so that certain factions or schools are inclined to deny to their competitors the same freedom of opinion and practice which they claim for themselves, and, unable to prevail by force of argument, endeavor by force of law to suppress the opinions with which they do not agree. If our labels conform to the therapeutic opinions of one school or faction, then the products are considered to be misbranded, and consequently false or fraudulent, from the standpoint of those who hold to an opposite or different opinion.

Laboratory experiments with animals have thrown a small degree of light upon the properties of drugs, but the light is still wavering and uncertain, and in some respects the results of tests upon animals are equally as conflicting and contradictory as the results of clinical observation.

The makers of the food and drugs law never intended to interfere in the conflict of medical opinion, or to place the stamp of official approval upon the medicines of one school or set of physicians in preference to others, or to restrict the free manufacture and sale of medicinal agents representing every shade of medical opinion.

The administrator of the law may not consciously intend to be a partisan, but this is exactly what he becomes when he undertakes to decide that a medicinal product is misbranded for no other or better reason than that its label or literature makes a therapeutic claim not accepted by the particular school or class of physicians with which he affiliates. If, for example, he rules that a label is incorrect because it ascribes to a preparation of cactus or of echinacea the medical properties which thousands of competent and successful physicians claim for these drugs, which claim he does not himself accept as true, and that the preparation is therefore falsely and fraudulently misbranded, he is guilty of an unwarranted interference with the freedom of medical practice and with the rights of manufacturers and dealers to supply physicians and the public with the remedial agents in which they have confidence.

The proper attitude, and the attitude which I believe the American people endorse, in so far as they are informed upon the matter, is that a preparation is not misbranded when either the label or the accompanying literature describes it as efficient for the treatment of an affection, or class of affections, in fair accordance with the views of any considerable number of practitioners of any school of medicine, even though its efficiency for such purpose be stoutly denied by other schools or by other practitioners.

If physicians cannot agree among themselves as to the therapeutic usefulness of drugs, how in the name of logic and common sense can food and drug officials, or even judges and juries, be expected to decide correctly?

Our works on materia medica are full of drugs once popular but now generally abandoned, and of drugs once considered of no value but now popular and largely used.

The history of the use of ipecac is a case strikingly in point. This drug was originally introduced as a remedy for dysentery, as denoted by its early name of *radix antidysenterica,* but gradually lost its repute and passed nearly out of use for that purpose, except with some so-called "irregular" practitioners and a few proprietary remedies. Within recent years it has been found that its alkaloid emetine is by far the most efficient remedy known for certain forms of dysentery, and the drug is now so popular with the medical profession that it is becoming difficult to supply the demand.

If one of the above-mentioned proprietary medicines had been seized during the period when ipecac was in disfavor for the treatment of dysentery it would undoubtedly have been declared misbranded, upon the ground that it did not contain any ingredient capable of producing the effects claimed for it.

Does not this example—and it is only one of many that could be cited—show the frailty of that official cocksureness which undertakes to decide offhand as to the value or lack of value of medicinal preparations, in opposition to contrary opinions based upon observation and experience?

At some distant day we may be able to determine the therapeutic value of drugs by laboratory tests with some approach to the certainty with which we can determine their chemical constitution, but until that enlightened period arrives there can be no better warrant for legal interference with medical opinions honestly held than for legal interference with political and religious opinions.

In conclusion, whenever you exert your influence as an organization or as individuals to prevent oppressive legislation or unreasonable administrative action, in defence of the just rights of even the smallest retailer of drugs and medicines, you are helping to realize the great ideal of the American Pharmaceutical Association, and to defend the community of interest of which that association is the chief exponent.

On behalf of that association, and in my own behalf, I wish you a most successful convention, and one fruitful of good results, both for your own members and for the larger drug fraternity of which you are an important section.

DOPE LAW REDUCES SALE OF NARCOTIC DRUGS 80 PERCENT.*

The question as to whether the Legislative Committee of the Pennsylvania Pharmaceutical Association shall have a bill drafted providing for state anti-narcotic regulation to supplement the Harrison Federal Act and afford still further protection to the public will doubtless come up for discussion at the annual meeting at Reading this year, especially in view of the statements recently made in the newspapers that the number of drug *habitués* has not decreased.

Declarations have been made by the jobbing and manufacturing interests through whose hands these narcotic drugs originally pass that the total amount imported and sold has been reduced about 80 percent; therefore the conditions referred to must be local and not general.

As the Pennsylvania Pharmaceutical Association was prominently identified with the passage of the Pennsylvania Cocaine Law of 1909, one of the forerunners of the Harrison Act, and has energetically worked for years to aid in the passage of federal legislation, it gives the members much satisfaction to learn from the First Annual Report of the Internal Revenue Commissioner on the administration of the Harrison Act that out of 52,187 druggists registered in the United States under this act, only 216 violations of the law were reported, and most of these were of a technical character and not violations of the spirit of the law.

These figures show that over 99.6 percent of pharmacists are found to be complying with a law which, so far as they are concerned, is full of hardships, pitfalls, and arbitrary requirements. For instance, it is perfectly legal and proper to sell over the counter to any customer certain household remedies or medicines containing minute amounts of narcotic drugs too small to become habit-forming and specifically permitted by the exemption clauses of the act, but if a prescription is presented calling for any quantity, however small, of one of these preparations compounded with another medicine, that prescription is subject to all of the restrictions which a really habit-forming prescription calls for and therefore cannot be renewed.

The multitudinous records and reports and the extraordinary care which must attend all handling of narcotic drugs fall with greater force upon pharmacists than upon physicians.

As the primary object of the law is the benefit of the public, and as reports show that this object is being achieved, there is no disposition on the part of pharmacists to do more than protest against such inconsistent rulings as that of Treasury Decision No. 2213, the practical effect of which is explained above. The ruling should either be modified or withdrawn, or else all exemptions should be abolished. As the latter would necessitate the amending of the law itself, it would seem more practical to modify the ruling.

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* This is copy Bulletin 2, issued by the Publicity Committee of the Pennsylvania Pharmaceutical Association; reference to this work is made in Editorial Notes.

MODERN METHODS.*

There is probably no other business that has undergone more changes in the last twenty years than the retail drug business, and in order to meet these changed conditions new methods are constantly being developed.

One of the first and most pointed aggressions was from the professional side in the rapidly-growing tendency of the physician to do his own dispensing.

Conditions, however, are far from being irremediable. Don't fight or slur the dispensing physician; get acquainted with him, use tact, interest him in your work. Convince him of your skill and integrity and knowledge of the goods you handle. The particular man does not buy ready-made clothing when he can find a dependable tailor and is sure of a fit. Just so the conscientious physician, assured that his prescription is safe in your hands, will not be tied to ready-to-use formulæ, and will appreciate your coöperation. Much is possible on these lines.

Another outlet for your professional knowledge and skill will be found in the compounding of preparations for the many emergencies of the household and farm. The field is sufficiently broad without attempting to compete and antagonize the doctor in the curing of physical ills. Demonstrated ability in these lines will create an increased confidence that will aid greatly in the building up of other departments of your business. The knowledge that any goods you prepare or recommend have quality and merit gives weight to your claims to dispense pure drugs, pure spices, pure soda water, or any other item that needs a backing of personal integrity. You can profitably become the expert professional adviser of a community in all matters involving chemical problems.

Expert analytical work is another field of growing importance. It is becoming the basis of modern diagnosis. It will put you in close touch with the physician, who will welcome trustworthy coöperation in this direction. Surely the pharmacist who considers the securing of a diploma, with the legal right to sell drugs, the *finis* of his technical education, and who is satisfied to limit its exercise to what few prescriptions may stray his way, has missed the inspiration of a high calling.

Aside from the above, we have other influences making decided inroads into the profession of pharmacy, not the least among these being the department store and the cut-rate chain store, with their deceptive bargain sales of the other fellow's preparations. Then the mail-order houses which have come into new life through parcel-post legislation and department regulations, not to forget the wagon peddler, who, it appears, cannot be eliminated in this State. Even the soda fountain, once never looked for outside of the drug store, now flourishes in the most unexpected places, cigar stores and billiard halls being some of the latest to adopt it. Seemingly there is no line in which there is not the sharpest competition to be met, and with it all there is no business so surrounded by legislative regulations and restrictions as the drug business in the State of Iowa.

Not only are our national or federal laws pertaining to the drug business numerous and exacting, but our State laws particularly are complex in this direction.

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* Abstracted from an address by F. Junkerman, of the Churchill Drug Company, Cedar Rapids, Iowa, being one of a number of interesting addresses delivered January 18 and 19, and part of the "Short Course for Pharmacists" under the direction of the Iowa Pharmaceutical Association and the Department of Pharmacy of the University of Iowa. The value of this work for pharmacy can hardly be overestimated, and was prompted by the desire of the University to be helpful to pharmacists.

Among these are the Pure Food and Drug Laws, Insecticide Laws, Weight and Measure Laws, Narcotic Laws, Poison and Liquor Laws, and many others. It occurs to me that the value and efficiency of the pharmacist as he emerges from his course in our universities would be greatly enhanced by including in his studies the principal laws pertaining to his profession.

Is the druggist, then, waging a hopeless battle? Not by any means. The requirements of the profession insure a higher educational training to start with than will, on the average, be found in most any other line of business. And, furthermore, that training gives him from the start a standing in the confidence of the community which his competitors in other lines lack. With these advantages, he should readily hold his own if he has the foresight and adaptability to adjust his business to the changing conditions. This education, however, is purely scientific, and leaves untouched a large share of the problems of his future commercial activities.

Particular attention should be paid to the promotion of the many side lines which have proved so profitable in many localities where they have been given some thought, such as toilet articles, paints and wall-paper, stationery, sporting goods, photographic supplies, holiday goods, cigars, soda water, etc. In fact, up-to-date merchandise should be the keynote of every practical druggist, and without it the business under ordinary conditions would be unable to maintain itself. Much study and thought should be given these particular lines to see that the right ones to fit the locality are selected.

Purity and sanitation are the slogan of these days. The drug store, of all places, should emphasize these ideas. Cleanliness should be apparent from front to back, with ample light. The fixtures should be in keeping. Old-style counters should be discarded. The dark spaces underneath are apt to be a catch-all for rubbish and dirt. To sell goods, they must be displayed, and the fixtures should be selected with that end in view. And don't be afraid to take a lesson from the department store. Mark all goods displayed plainly, with the selling prices, otherwise your display loses much of its value.

Use the show window to its limit. How many people pass your store daily? By what other means can you reach the same number of people, and reach them as effectively, as by striking window displays frequently changed? Note the space provided for window displays in every modern building. Is that not evidence of the value now placed on them as a factor in making sales?

Service is another great factor in the drug business. You cannot be too particular about the service given. It is the making or the wrecking of the business. The services that the druggist renders without charge have provided the funny paragrapher with unending material. But don't let that worry you. That reputation for generous service is your biggest asset. Build on it, regardless of the few who impose, or who seemingly lack appreciation.

And your clerks! Note how the big business educates and trains them: how in certain stores, you can judge the policy and character of the management by the atmosphere—the subtle impression given by the service. In certain stores the service fairly inspires confidence and good-will. All your efforts to bring people to your store may be worse than nullified by poor service. When you have hired a clerk you have just begun. Neatness, alertness, patience, courtesy, tact in making suggestions—your standard in these matters will inevitably be reflected by your force. Personal example, as well as careful training, is essential.

The soda fountain and cigars—what other lines will bring customers so regularly and frequently into your store as these two? Here, also, the equipment must be up-to-date. There are cases built now for cigars and tobacco that will harmonize perfectly with the modern sanitary fixtures, and they are equipped for the proper keeping of stock. As an advertising feature alone they are worth all they cost. And the fountain! The confidence of the community in your training to standards of purity brings this business naturally to your store. Thoughtful people will not go themselves, nor let their children go, where there is any question as to sanitary conditions or the purity of the products. The alpha of the fountain is neatness. The omega of the fountain is neatness. It is not a job for the kid who, between times, sweeps the floor and washes windows. It is a man-size job, and the more care and brains put into it the better it will pay. With the growth of the temperance sentiment and the knowledge of the purity and high food value of the products served at all first-class fountains, the possibilities of this business are just beginning to be realized. The modern fountain is built on labor-saving, sanitary lines. Only through grossest carelessness can it become unsanitary. There is no fixture that adds so to the beauty and attractiveness of the store.

In conclusion, permit me to offer a few practical suggestions on the business side.

With a jobber at your elbow, interested in your welfare, dependent for his success on the success of his customers, you have a friend worth cultivating. Get personally acquainted with him, and you will find your business relations moving more smoothly. See as frequently as possible what he has to sell. He knows what is new and salable, and can give you valuable pointers. He is interested in selling you, not only to-day but to-morrow, and he will not abuse your confidence, for he wants your good-will.

Be kind to the jobber's salesman. Take time to see the goods he has to show you. He usually carries only the latest and best. It will pay you to see what they are, even if you do not care to buy at the time. And if he is the right kind of a salesman, he can often give you good business ideas, for he constantly sees what a hundred or more druggists are doing, and he is interested in not only selling goods to his customers, but also in seeing them successfully disposed of, so that he can sell more.

Buy carefully; don't overload; the jobber is near. Let him carry the stock, and buy only as you need. A well-diversified stock will make you more money than you can save by buying heavily of staples, if by so doing you cramp your buying ability in other directions.

Beware of the salesman who comes never to return. His glittering promises, glowing prospects, and special discounts will not sell the goods. All he wants is the order. It would surprise you to know the amount of goods so bought that the jobber is solicited to help out with later on. A quantity discount is not profitable unless you can sell the goods and sell them quickly. The cost of carrying will soon eat up the extra margin. You could make a lot more with the same money in the same length of time by using it in taking advantage of cash discounts.

The neglect to take all cash discounts is a great mistake. This is one of the biggest and commonest profit-leaks. You can not afford it. Look over your bills, see how much it means and how little it would take to handle it. Even if you have to borrow money, it would pay you well to do it. It establishes your credit, without which you cannot conduct a successful business.

Above all, know your business from A to Z. Don't guess at anything. Take inventory at least once a year, and analyze the figures. Find out just what it is costing you to do business, and figure the margin of profit accordingly. Keep the records of each department of your business distinct so far as possible. It will show you where and when a boost is needed. Drugs at bargain prices do not inspire confidence.

After your inventory is completed, see to it that you are properly covered by an adequate amount of insurance. To sum it up, a pharmacist, to meet the competition of to-day, must study business conditions and methods just as carefully and thoroughly as the principles of his profession, and it pleases me to note that your University appreciates this condition, as is evidenced by the program of this course.

AERIAL OR GASEOUS DISINFECTION.*

BY SEWARD W. WILLIAMS, PH.C., F.C.S.†

The term aerial disinfection is employed to mean the use of the air as a vehicle for diffusing, to all exposed surfaces of the room and its contents, a gaseous germicide. The disinfection of the air itself, more or less loaded with germ-laden dust particles as it usually is, may be regarded as incidental, just as would be the case with water used in making a disinfectant solution. Air and water are the natural agencies for cleansing an infected apartment. Why should we not render the former germicidal as well as the latter? A room, subjected to gaseous disinfection and aired, should be a safer place for a scrub woman, paperhanger, or painter to work in than if not previously fumigated, and these workers[1] deserve consideration as well as future occupants.

The subject is timely because of the recent decision of the New York City Health Department to abandon gaseous disinfection after most of the communicable diseases.

As fumigating devices and materials are handled by the pharmacist, and as, in his position of "Chemist to the Medical Profession and the Public," he is likely to be asked numerous questions about gaseous disinfection, an effort is here made to give him an idea of its present status among sanitarians.

FACTS ABOUT FUMIGATION IN NEW YORK CITY.

The following letter was addressed to Dr. M. C. Schroeder, bacteriologist, New York City Department of Health:

> As the number of cases of measles, for an equal period of time before and after abandoning fumigation in Manhattan, is given as evidence that fumigation did no good, the following questions suggest themselves:
>
> 1. Did the board always fumigate after *measles*, during the period in which fumigation was generally practised?
>
> 2. Was the method of fumigation as efficient as it could easily have been made with more disinfectant material?

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* Read before Chicago Branch of the American Pharmaceutical Association, November 16, 1915.

† Scientific Department, Bauer & Black, Chicago.

[1] Even if we had tests for determining natural immunity to the principal communicable diseases, such as the recently-introduced Schick test for determining susceptibility to diphtheria, no one would probably think it practical to apply them to those about to clean up infected apartments.

3. Is the viability of the measles germ such as to make it a fair basis for comparison?

4. Was the process, given in your article in the Journal of Public Health of August, 1912, used up to the time fumigation was abandoned? If not, what process was employed at that time?

Dr. Schroeder (under date of October 7, 1915), replied as follows:

1. Yes.

2. Method of fumigation was adequate. If penetration was desired, more fumigation material would have brought about this result.

3. Too little known about this organism to make it of use as a basis of comparison.

4. There was no change made in the quality or quantity of the disinfectant or in the time period which was deemed necessary.

The quantities used were:

Paraformaldehyde	1 oz.
Potassium permanganate	2½ oz. (medium-sized crystals)
Water	3 oz.

The time allowed for disinfection was four hours. The testing organism was *B. pyocyaneus* on cotton threads enclosed in sealed tissue paper envelope and suspended at least four feet above and six feet distant from the fumigating pan.

It should be noted (*a*) that, in using one ounce of paraformaldehyde (solid formaldehyde) with permanganate, a part is consumed in the reaction, so that less than one ounce is generated as formaldehyde gas; (*b*) that Dr. Schroeder found that with this small amount the gas went through an envelope and killed the test organism in an exposure of only four hours; and (*c*) that he says greater penetration would have resulted from using more formaldehyde.

FORMALDEHYDE GAS DISINFECTION IN CHICAGO.

The following letter from Dr. Spalding and instructions for fumigation by Dr. Rawlings explain the present method of the Chicago Department of Health:

. . . . In reply to your letter of October 18, I am attaching hereto our method for gaseous disinfection.

We require that the rooms be sealed and articles of wearing apparel, etc., be thoroughly exposed to action of the formaldehyde gas.

Herman Spalding,
Chief, Bureau of Medical Inspection.

When all the pans used for the space to be disinfected have been prepared, proceed as follows:

If Paraform is Used.

Place in mixing pan—

Chlorinated lime	60 grammes
Paraform	30 grammes

Mix *quickly* and add (pour over) 90 Cc. of water *immediately*. The mixture of chlorinated lime and paraform will commence to react even before the addition of water Therefore, it is necessary to work rapidly.

If Formalin is Used.

Place in mixing pan—

Chlorinated lime	60 grammes
Add water	20 Cc.

Mix thoroughly.

Add formalin	75 Cc.

over the moistened lime.

In performing disinfections, material should be added to the pan farthest from the exit and then in succession to the others in the order of distance from the exit. Before mixing ingredients, remove all surplus material and equipment from the room.

WARNING: Quarantine officers must follow carefully the method outlined. It is very easy to cause injury to woodwork, fabrics, etc., if any of the disinfecting material comes in direct contact with any articles or materials in the premises under disinfection. Chlorinated lime will be furnished in one-pound cans with a small pry-up lid at the top. Employees must use care in handling this lime. If any of it gets on clothing or leather, these articles will be injured by it.

The present method will be used as long as the quarantine officer has a supply of permanganate of potash. After supply of permanganate of potash is exhausted, the quarantine officer will use the paraform-lime method. When the supply of paraform is exhausted, the quarantine officer will then use the formalin-lime method.

By direction of the Bureau Chief,

I. D. RAWLINGS, M.D.,
Asst. Chief, Bureau of Medical Inspection.

In their standard work on "Practical Sanitation" published last year, Doctors Gardner and Simonds, speaking of "solid formaldehyde," say: "Used with moisture in the proportion of one ounce per 1000 cubic feet, it is very convenient and effective."

With so much evidence that one ounce kills the test organisms, it seems reasonable to conclude that two ounces would provide working margin enough to cover difference in resisting power of pathogenic germ life and some variation in the tightness of the room and condition of atmosphere; it being understood that formaldehyde should be used in fairly warm, humid air for best results.

QUANTITY OF PARAFORM ADVISED BY U. S. GOVERNMENT AUTHORITIES.

An expert of the Public Health and Marine Hospital Service of the United States (Bulletin No. 42, p. 13), in speaking of the use of paraform, says: "The paraform is placed in the cup and a flame applied underneath. The flame should not be too strong, for should the paraform ignite no formaldehyde gas will be produced and there will be no disinfection. The space to be disinfected should be tightly closed and all cracks pasted up. For each 1000 cubic feet of air space two ounces of paraform should be used. The time of exposure should be about four hours. If necessary the flame under the utensil containing the paraform can be left burning during the time of exposure."

The formalin-permanganate method will be treated on another page in connection with the formalin-dichromate process.

TWO QUESTIONS INVOLVED.

Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College and author of the standard work on "General Bacteriology," replies to a letter of inquiry as follows:

> In regard to the efficacy of room disinfection I hope you will pardon me for not replying in detail to your *questionnaire.* It is my feeling that a subject of this sort cannot be settled by a majority vote. There are two questions involved: (1) The efficacy of gaseous disinfectants, such as formaldehyde, in destroying bacteria; and (2) the efficacy of room disinfection in preventing the spread of certain infectious diseases. The latter question, at least, demands more study, and it seems to me that the gathering of evidence is needed more at present than the expression of opinion.

In his "General Bacteriology" (1915 edition) Dr. Jordan says: "If the solid polymer of formaldehyde is heated, not ignited, formaldehyde is evolved. A lamp has been especially constructed for this purpose, and with the use of tablets or pastilles of paraform affords an easy and effective means of disinfecting small rooms (Schering system)."

As pharmacists, both retail and manufacturing, our part is fairly done if we supply fumigators which actually kill disease germs. But as citizens we are interested in knowing how much benefit the community derives from gaseous disinfection so that we can give trustworthy answers to other citizens who, as customers, ask for information. Good business and good citizenship run parallel. At least they should; and will ultimately.

Dr. Victor C. Vaughan, in an address last summer at Lapeer, Mich., on "The Doctor's Dream," looked forward to the time when the province of the medical profession will be principally to prevent, instead of cure, disease.

Surgeon-General Gorgas, who has worked such wonders in practical sanitation in Cuba, the Canal Zone, and elsewhere, lays special stress upon getting at and remedying the underlying causes of disease. In a letter on another page he says: "I feel confident that the most important sanitary measure that any community could adopt would be a taxation on land values." As citizens we should inform ourselves regarding the merits of this statement, made by an authority who has a better right to express himself on a question of practical sanitation than any one else on earth.

To secure the best available information from practical sanitarians, seven questions were addressed to each State Board of Health. When it is considered that State health officers have had access to practically all the evidence there was, it will probably be admitted that their expressions of opinion come very near to being a presentation of evidence up to date.

The answers received are here classified alphabetically by States, under each query:

SYMPOSIUM OF HEALTH OFFICERS.

1. *After What Diseases Do You Think It Desirable To Fumigate?*

ARIZONA.—Governor Geo. W. P. Hunt, President State Board of Health, Phœnix: . . . Your form inquiry, regarding aerial disinfection, is being referred to Dr. R. N. Looney, State Superintendent of Public Health, so that due attention may be given to the somewhat technical inquiries which you have presented. . . . R. N. Looney, M.D., Phœnix, answers: All contagious or infectious diseases.

ARKANSAS.—C. W. Garrison, M.D., State Health Officer, Little Rock: After Asiatic cholera, acute anterior poliomyelitis, epidemic cerebrospinal meningitis, diphtheria, leprosy, measles, plague, scarlet fever, smallpox, tuberculosis, and whooping-cough.

DISTRICT OF COLUMBIA.—Wm. C. Woodward, M.D., Health Officer, Washington, D. C.: After yellow fever, to destroy mosquitoes; after plague, to destroy rats and fleas; and after typhus fever, to destroy lice. Premises, or parts of premises, that may reasonably be believed to be infected, should be *disinfected* after exposure to Asiatic cholera, smallpox, leprosy, plague, glanders, scarlet fever, diphtheria, epidemic cerebrospinal meningitis, anterior poliomyelitis, and communicable form of tuberculosis. Whether this disinfection shall be by mechanical methods plus the use of germicides in solution, or by fumigation alone, or by any combination of these, depends upon the circumstances of each individual case. Mechanical methods of disinfection—that is, thorough mechanical cleaning—plus the use of germicides in solution, undoubtedly represent the most effective way of disinfecting. When this method cannot be satisfactorily employed, fumigation may well supplement it.

FLORIDA.—Joseph Y. Porter, M.D., State Health Officer, Jacksonville: After none whatever. We advise, as a routine procedure, boiling of clothing, bedding, dishes, and other articles used by the patient, and a thorough mechanical cleansing of the infected quarters; followed by free sunning and airing for several days.

IDAHO.—W. R. Hamilton, M.D., member and ex-president of Idaho State Board of Health, Weiser: Scarlet fever, measles, variola, tuberculosis, diphtheria, infantile paralysis, meningitis, etc.

ILLINOIS.—C. St. Clair Drake, M.D., Executive Officer State Board of Health, Chicago: Probably smallpox and tuberculosis, if any. As a matter of enforcing general airing of infected premises, however, liberation of strong gases is important. Free airing, thorough washing, and sunshine will do.

ILLINOIS CENTRAL R. R.—A. E. Campbell, M.D., I. C. Health Officer, Chicago: Pulmonary tuberculosis, smallpox, scarlet fever, measles. As we do not know the cause of the last three, I favor thorough fumigation until we do.

INDIANA.—J. N. Hurty, M.D., Phar.D., Secretary State Board of Health, Indianapolis: Personally, I have very little faith in disinfection. At one time I was strongly in favor of thorough disinfection of all infected premises, but my experiences have been corroborative of those of Dr. Chapin and other writers upon the subject. It may be that if disinfection is perfected and made better different results would be obtained. If we are to disinfect at all we should disinfect after all infectious diseases.

KANSAS.—O. D. Walker, M.D., President State Board of Health, Salina: All infectious and contagious diseases.

LOUISIANA.—Oscar Dowling, M.D., President State Board of Health, Shreveport: For over two years the Board of Health has been making investigations relative to fumigation and we are going to get out a pamphlet on the subject some time in the near future, and we shall be glad to send you a copy.

[The following quotation from pages 59 and 62 of the 1911 edition of "Sanitary Code State of Louisiana" (the latest obtainable) will give an idea of what has been the attitude of the board toward formaldehyde fumigation and the fomite theory:

"When a patient recovers from pneumonia, the room must be thoroughly fumigated with formaldehyde, not less than 12 ounces of formalin per 1000 cubic feet of air space, and the floors scrubbed with lye soap and the walls and woodwork wiped with a cloth wet with a 2 percent solution of carbolic acid. All washable fabrics that have come in contact with the patient must be boiled."

Section 159 reads:

"The sleeping apartments of tuberculosis patients must be thoroughly disinfected at least monthly; and on the death or removal of the patient, re-disinfected; if, in spite of the thorough disinfection and renovation, new cases should arise in a house that has been occupied by a consumptive, the premises may be condemned and destroyed by the State Board of Health whenever it seems advisable so to do."

Section 160 says:

"The sale or donation of clothing, bedding or other objects which have been in use by consumptives, or others suffering from any contagious or infectious disease, is prohibited, unless accompanied by a certificate that the same have been disinfected under the supervision of the Municipal or Parish Health Officer." W.]

MAINE.—A. G. Young, M.D., Secretary State Board of Health, Augusta: I do not wish to answer this question now. I am formulating new rules for submission to the Board.

MARYLAND.—John S. Fulton, M.D., Secretary State Board of Health, Baltimore: With some reluctance, I am making tentative answers to your inquiries. This whole matter of disinfection is in the melting pot and the form in which you have put your seven questions shows very clearly which side of the contest you have taken up. Personally, I do not care about the use of the word "fumigation," or about the use of the term "aerial disinfection." This business of public hygiene is in eternal oscillation, and we are probably right in describing the limits of oscillation as "extreme."

Substituting the word "disinfect" for the word "fumigate," I reply that terminal disinfection is done in Maryland after tuberculosis, scarlet fever, diphtheria, smallpox, and some other acute infectious diseases.

MICHIGAN.—Victor C. Vaughan, M.D., Ph.D., LL.D., Ann Arbor, President State Board of Health, Dean University of Michigan Medical School, President American Medical Association (1915), etc.:

Dear Williams:—I have not answered your questions for the very simple reason that it would take a volume to do so. I should want to give a great deal of time and attention to the matter and look up much research work before I answered your questions.

[Looking back to nineteenth century student days at Ann Arbor, when the writer enjoyed the privilege of being in some of the good Doctor's classes, it is hard to realize that the Professor (*mirabile dictu*) is perhaps a bit puzzled himself. Nothing could better emphasize the fact that doubt attaches to many theories. No better backing is needed for the sanitarians who prefer to remain on the safe side until these doubts are removed. W.]

MINNESOTA.—H. M. Bracken, M.D., Secretary and Executive Officer State Board of Health, St. Paul: None under proper conditions. Our circular on disinfection sets forth the views of the Minnesota State Board of Health to some extent. These views are, in effect, that a good housecleaning is better than the ordinary attempts at disinfection by means of the use of gaseous disinfectants.

MISSOURI.—G. B. Schultz, M.D., President State Board of Health, Cape Girardeau: Tuberculosis, smallpox, measles, diphtheria, erysipelas, various cocci infections.

NEBRASKA.—E. Arthur Carr, M.D., President State Board of Health, Lincoln: Tuberculosis, scarlet fever, smallpox, erysipelas, diphtheria, epidemic cerebrospinal meningitis, etc.

NEVADA.—Mark F. Boyd, M.D., Pathologist and Bacteriologist University of Nevada Hygienic Laboratory, Reno: Dr. W. H. Hood, President of our State Board, has turned over to me your letter with request that I answer it. Fumigation after the commoner infections apparently does not materially decrease the incidence of these diseases in communities where the practice has been in use, as compared with their incidence following the discontinuance of terminal fumigation. In these diseases, I think that terminal fumigation might be discontinued without any harm. At the best, it is only a weapon of exceedingly slight service, and attention is too apt to be exclusively directed to it to the neglect of more important prophylactic measures. With certain exotic diseases, such as plague and typhus, it assumes a rôle of greater importance.

NEW YORK.—F. M. Meader, M.D., Albany, Director Division of Communicable Diseases, State Department of Health: After communicable diseases when soap and water cannot be obtained. Particularly rooms recently vacated by a person acutely ill with the disease.

Joseph J. O'Connell, A.M., M.D., Rosebank, Health Officer of the Port of New York: I think it desirable to fumigate after all communicable diseases. I know that there has been much said recently by some sanitarians as to the uselessness of disinfection, but until the causative organisms of some of the most common of our infections have been at least isolated and identified, I cannot bring myself to the conclusion that it is scientific to abandon measures which we know to be fatal to some of the pathogenic organisms that have been identified and are at least unfavorable to the growth of nearly all of such. Two years ago Dr. C. V. Craster, a bacteriologist in this service, did some experimental work in our laboratory at my direction and the report of his experiment you will find on pages 90 *et seq.* of the annual report of this department for the fiscal year ending September 30, 1913, a copy of which I am sending to you under separate cover. You will note that in his work he succeeded in destroying some of the organisms and that the sulphur dioxide fumigation inhibited the development of such of the organisms as were not killed. Fumigation is unfavorable to the growth of pathogenic organisms and is fatal to some of them. Consequently, while it may not be a complete protection, it is a protective measure of great value, reducing the danger of infection where it doesn't entirely eliminate it. I think it would be dangerous if conclusions were too hastily drawn from the action of the New York City Health Department in abandoning the practice of fumigating rooms after cases of communicable disease. The fumigation of living quarters in a congested city is very difficult. The mere direction to the family of the patient to burn sulphur or generate formaldehyde gas in the room lately occupied by the sufferer from an infectious disease was of course without effect. There are immense practical difficulties in the way of a proper fumigation of domiciles, particularly in the congested sections of a city, and this consideration was doubtless determinative with the New York Health Department.

Dr. M. C. Schroeder, M.D., New York, Bacteriologist New York City Department of Health: The New York Department of Health fumigates with sulphur after Brill's disease, typhus, smallpox.

New Mexico.—L. G. Rice, M.D., President State Board of Health, Albuquerque: All contagious diseases, especially smallpox, diphtheria, tuberculosis and scarlet fever.

North Carolina.—J. Howell Way, M.D., President State Board of Health, Waynesville: Scarlet fever and tuberculosis.

Ohio.—E. F. McCampbell, Ph.D., M.D., Secretary and Executive Officer State Board, Columbus: Terminal disinfection is required by the Ohio State Department of Health following smallpox, diphtheria and scarlet fever. Its use is recommended following acute poliomyelitis and epidemic cerebrospinal meningitis.

Ontario (Canada).—J. W. S. McCullough, M.D., Chief Officer of Health, Toronto: All communicable diseases.

Oregon.—Calvin S. White, M.D., State Health Officer, Portland: Smallpox, chicken-pox, scarlet fever and epidemic "la grippe."

Pennsylvania.—Samuel G. Dixon, M.D., Commissioner Commonwealth of Pennsylvania Department of Health, Harrisburg: We are using formaldehyde gas for disinfecting purposes after all communicable diseases except those which are animal in type.

S. Solis Cohen, M.D., Professor of Clinical Medicine, Jefferson Medical

College, Philadelphia; Physician to Philadelphia General and Jefferson Hospitals: All of the so-called contagious diseases as distinguished from those which although infectious are not transferred by contact or by fomites—thus after smallpox, measles, scarlatina, diphtheria, tuberculosis, but not after typhoid fever or malaria.

South Dakota.—David L. Rundlett, M.D., Sioux Falls (replying by request of Dr. L. G. Hill, President State Board): In a general way, after all contagious and infectious diseases, viz.: smallpox, chicken-pox, epidemic cerebrospinal meningitis, acute anterior poliomyelitis, diphtheria, erysipelas, measles, pneumonia, scarlet fever, tuberculosis (lungs), typhoid fever, whooping-cough, and some of the diseases common to both man and beast, as, anthrax and glanders.

Tennessee.—Ambrose McCoy, M.D., Jackson, President State Board of Health: Scarlet fever, diphtheria, smallpox, tuberculosis, cerebrospinal meningitis.

Utah.—T. B. Beatty, M.D., Secretary State Board of Health, Salt Lake City: Scarlet fever, smallpox, tuberculosis and possibly diphtheria.

Wisconsin.—C. A. Harper, M.D., President State Board of Health, Madison: I desire to state that I believe in aerial disinfection as a factor in destroying the infectious agency of the so-called communicable diseases. I consider, however, of equal if not more importance the general cleaning of premises where communicable diseases have been prevalent, believing that the two procedures are the means of preventing a large number of cases of communicable disease and that neither one of the processes is entirely sufficient in itself.

Would disinfect after diphtheria, scarlet fever, smallpox, tuberculosis, measles, anterior poliomyelitis and epidemic cerebrospinal meningitis.

Wyoming.—Herbert T. Harris, M.D., President State Board of Health, Basin: Smallpox, scarlet fever, diphtheria, cholera, typhus, cerebrospinal meningitis. In measles and whooping-cough we doubt the efficiency of any fumigation, but the use of some fumigating agent following the two diseases certainly does no harm.

[Replies to number 1 may be classified as follows: Favorable to fumigation, 19; partly favorable, 3; unfavorable, 5; doubtful, 3.]

2. *Do You Regard Formaldehyde as The Most Satisfactory Aerial Disinfectant? If Not, What in Your Opinion Is Better?*

Arizona.—Dr. R. N. Looney: Yes.

Arkansas.—Dr. C. W. Garrison: Probably so, under favorable conditions. When the temperature is above 60 degrees F. or the atmosphere very humid, some preparation of sulphur is more efficacious, but troublesome in that certain articles are damaged by sulphur fumigation. No fumigation is satisfactory under all conditions.

District of Columbia.—Dr. W. C. Woodward: If by the term "aerial disinfectant" is meant the disinfectant for the purpose of killing the germs in the air, formaldehyde in gaseous form and in the presence of moisture is, in my judgment, as satisfactory a disinfectant as anything we have; but I can hardly conceive of the necessity for disinfecting air alone, as distinguished from the surfaces with which the air comes into contact. Formaldehyde gas, under proper conditions of temperature and humidity, is as satisfactory a gaseous disinfectant as anything that may be used in ordinary practice, except in cases in which it is desirable to destroy insects or rodents, in which last-named cases the use of sulphur dioxide, hydrocyanic acid, carbon monoxide, and carbon bisulphide, each in its appropriate sphere, is better.

Florida.—Dr. J. Y. Porter: Yes, where an aerial disinfectant is practicable or necessary.

IDAHO.—Dr. W. R. Hamilton: Yes.

ILLINOIS.—Dr. C. S. Drake: Formaldehyde, without permanganate of potash, is least damaging, least expensive and most provocative of airing.

ILLINOIS CENTRAL R. R.—Dr. A. E. Campbell: Yes, providing it is efficiently done. If not it is useless. Where we have smallpox with the patients living in cars, I favor sulphur.

INDIANA.—Dr. J. N. Hurty: In my opinion, of all the disinfectants, formaldehyde is the best.

KANSAS.—Dr. O. D. Walker: I know nothing better; but I do not think it covers sins of omission, such as thorough scrubbing with soap and water.

MAINE.—Dr. A. G. Young: Yes.

MARYLAND.—Dr. J. S. Fulton: We never try to disinfect air. We sometimes have to kill winged insects. Hydrocyanic acid vapor and sulphur dioxide are both better than formaldehyde for this purpose.

MINNESOTA.—Dr. H. M. Bracken: Yes.

MISSOURI.—Dr. G. B. Schultz: Yes.

NEBRASKA.—Dr. E. A. Carr: Yes.

NEVADA.—Dr. M. F. Boyd: Formaldehyde, if used in sufficient amount for the space to be fumigated and if attention is paid to temperature and humidity, is undoubtedly the most satisfactory agent at our disposal. Proprietary preparations of this substance offer no material advantages over the formaldehyde-permanganate mixture, and are not to be recommended.

NEW YORK.—Dr. F. M. Meader: For bacteria, yes.

Dr. E. H. Porter, ex-President New York State Board of Health: Yes.

Dr. J. J. O'Connell: Formaldehyde under proper conditions is an efficacious disinfectant. I regard it as one of the most practicable aerial disinfectants in certain circumstances. Like nearly all of the agencies through which we must work in this world, it is not perfect. Very frequently sulphur dioxide, with such hydration as natural atmospheric conditions furnish, may be more satisfactorily employed. In all fumigation, whether with formaldehyde gas or sulphur dioxide, or even with live steam, bed clothing and other articles liable to contain insect agencies of the transmission of infection or etiological factors themselves, should be broken open or very loosely bundled while under exposure. In spore form certain bacterial organisms will resist even boiling, and the ordinary fumigants lack sufficient penetration to destroy organisms protected by thick layers of intervening fabric.

Dr. M. C. Schroeder: The best one we have at present for vegetative forms of disease, not insect borne. Sulphur or hydrocyanic gas where animal life is to be destroyed.

NEW MEXICO.—Dr. L. G. Rice: We use formaldehyde, for I know of nothing better.

NORTH CAROLINA.—Dr. J. H. Way: Yes, it is the best we have.

OHIO.—Dr. E. F. McCampbell: The Ohio State Department of Health recommends formaldehyde for terminal disinfection, if such insects as lice or bed-bugs are not present. In the latter contingency sulphur is recommended.

ONTARIO (Canada).—Dr. J. W. S. McCullough: Yes.

OREGON.—Dr. C. S. White: Yes.

PENNSYLVANIA.—Dr. S. G. Dixon:

Almost immediately after Germany had declared war I realized that the old method of liberating formaldehyde gas from its water solution by the use of potassium permanganate would have to be abandoned, as the latter was all made in Germany. Therefore, our chemist, Mr. Charles LaWall, was requested to proceed at once to experiment along a line that would likely lead to the discovery of a new and an economic method of liberating the formaldehyde gas. Within three weeks from the time the experiments were started, following a suggestion from Dr. George Rosengarten to try sodium dichromate, he succeeded in producing a more rapid liberation of the gas from the water solution than was possible by the old process.

The reaction is produced by a combination of the dichromate with sulphuric acid. The most suitable proportion appears to be the following:

Sodium dichromate 10 ounces avoirdupois.
Saturated solution of formaldehyde gas 1 pint.
Sulphuric acid, commercial, 1½ fluidounces.

The sulphuric acid can be added to the solution of formaldehyde and the mixture kept on hand for use. It should, however, be more carefully handled, as the presence of the acid would render it destructive to furniture, fabrics, etc.

This solution can be added to the crystals of sodium dichromate spread out in a thin layer over the bottom of the vessel having ten times the capacity of a volume of the ingredients used.

The reaction is more nearly instantaneous than with potassium permanganate. This necessitates a very prompt withdrawal from the room in which the chemical reaction has been started.

The residue is somewhat corrosive and therefore it is well to pull our tin container out of the room by an attached cord one-half hour after the reaction has been started. The residue should be removed from the can immediately and the vessel scrubbed with soap and water.

Dr. S. S. Cohen: In most instances, if thoroughly applied.

South Dakota.—Dr. D. L. Rundlett: Yes, it is one of the most useful and one of the best because of its high value as a germicide, its non-poisonous qualities, and it is not destructive to other materials. With it, however, you must have a large volume of gas produced in a short period of time, to make its effectiveness most marked.

Tennessee.—Dr. Ambrose McCoy: Yes.

Utah.—Dr. T. B. Beatty: Yes.

Wisconsin.—Dr. C. A. Harper: I believe formaldehyde the most satisfactory aerial disinfectant. It must be liberated in sufficient quantities in a well-closed room in the presence of plenty of moisture and heated close to 70 degrees Fahr., or thereabout, in order to be efficient, and a sufficient amount of formaldehyde should be used.

Wyoming.—Dr. H. T. Harris: Formaldehyde is in my opinion the best fumigating agent.

[Summary for Number 2: 28 regard formaldehyde as the best gaseous germicide, 2 qualify their approval.]

(*To be continued.*)

THE TEACHING OF COMMERCIAL PHARMACY.*

BY ROBERT P. FISCHELIS, B.SC., PHAR.D.

The term "Commercial pharmacy," as generally understood, covers the business features of pharmacy, and, as a subject of the college curriculum, it may be defined as the study of the business problems of the present-day retail pharmacy.

The word "present-day" is used advisedly in this definition, for it must be admitted that the business problems of the retail pharmacy are constantly changing and what was good commercial practice a few years ago is now a fitter subject for discussion by the pharmaceutical historian than by the teacher of commercial pharmacy.

Present-day pharmacies are not all conducted on the same basis, and this fact complicates the teaching of commercial pharmacy. However, I believe that this handicap can be overcome by calling attention to the practice in our best stores as well as in the less desirable ones in such a manner as to create in the student a desire to approximate the best when he starts out on his business career.

It is to be supposed that some commercial training can be acquired by the student in the four years which he is required to spend in a retail pharmacy, by law, in most States. The training there acquired depends, first, upon the methods pursued by the proprietor of the pharmacy in which the student is employed; and, secondly, upon the student's ability and willingness to learn.

There are many features of business practice which cannot be taught except by experience, and usually this experience is not acquired until the pharmacist is in business for himself. In this connection I might refer particularly to buying goods. This is an important part of the business of pharmacy which is usually attended to by the proprietor himself, and the clerk is given little opportunity to learn it.

In many instances he does not lose much by being deprived of the proprietor's instruction, and, if he is wide awake, he will be able to judge for himself whether the "boss" is a successful buyer or not, and later govern his own buying policy accordingly.

Evidently business practice is not taught satisfactorily in most retail pharmacies, as the demand for teaching it in the colleges of pharmacy is constantly increasing.

The teacher of commercial pharmacy is confronted with a difficult task, for he has no time-worn footsteps in which to tread. He must break new ground, and it is essential that he approach his subject with a clear conception of the present-day problems of the pharmacy, an open mind, and a good supply of common sense.

The professor of pharmacy may teach all that is scientific about his subject, without regarding how much of his teaching is later applied, by the graduate, in actual practice; the professor of chemistry may draw beautiful pictures of organic formulas, and the professor of botany may dwell at length on the importance of schizogenous intercellular air-spaces in certain plant parts, but the teacher of commercial pharmacy is compelled to face conditions and set aside theories.

He must take cognizance of the fact that more thought is given nowadays to penny sales than to percolation; that more brain energy is used up in trying to undersell and otherwise compete with the other fellow than in writing organic formulas, and that the green color in the almighty dollar is much more attractive to the pharmacist of the present day than is the chlorophyll in our medicinal plants.

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* Read at the meeting of the New York Branch, A. Ph. A., January 10, 1916.

How best to reconcile the teaching of ideal pharmacy by the well-equipped and sincere major professors with the practice of pharmacy of to-day is no small problem, and it is the problem which confronts every man who teaches commercial pharmacy.

The greatest mistake that a teacher of commercial pharmacy can make is to ridicule the teaching of the theoretical subjects in the pharmaceutical curriculum and endeavor to impress upon the student that business practice is paramount in pharmaceutical education. However, the professor who can see nothing but chemical analysis as the life-work of the pharmacist makes the same type of error.

The following quotation is taken from an article by S. P. Sadtler in the American Journal of Pharmacy (1894), p. 227), and gives an excellent idea of the misconception of the practice of pharmacy in the minds of some eminent authorities, and indicates an absolute refusal to face the facts. It reads:

"If the pharmacist is known to his neighbors and to the medical profession with whom he comes in contact as a good chemical analyst, a thorough botanist and pharmacognosist, and, above all, a skilled compounder of all classes of official pharmaceutical preparations, he can rest assured that he will succeed, if he has, in addition, good common sense. Of course, all of these educational qualifications referred to may be thrown away on a visionary, rash, and unpractical person."

I fear that, according to this criterion of success in pharmacy, 99.5 percent of those now in the profession are failures.

How much more rational is the view expressed by Joseph Jacobs, in the Proceedings of the American Pharmaceutical Association (vol. 48, p. 97), in the following words:

"That pharmacist who best and most thoroughly knows the scientific side of his profession, and whose education has trained his intellect to quickly master in detail the facts of each business condition that confronts him, will be most likely to make a commercial success of his avocation. . . . Our noble professors, who have dedicated their talents and time to the training of youths, should be cheered by the thought that the theoretic side of their teaching is also implanting powers that will aid their charges more successfully to cope with the difficulties that lie across the pathway to commercial precedence."

This gentleman has, to my mind, grasped the situation fully.

All thinking men realize that when one spends some time in the study of any science, language, or other cultural subject, no matter how remote it may be, from one's vocation, the mind is benefited and the ability to solve the many intricate problems which arise in the day's work is aided and increased.

It is, therefore, ridiculous to minimize the value of the theoretical subjects in the curriculum of the pharmacy school, aside from any consideration of their absolute necessity to the proper practice of the profession.

It is my belief that we are teaching little more pharmacy, chemistry, materia medica and botany in our schools at present than is absolutely necessary for the intelligent practice of pharmacy, and any additional time to be devoted to teaching business practice should not replace hours now spent in teaching other subjects, but should be added to the present schedule.

The time allotted to the subject in the Pharmaceutical Syllabus is 75 hours, but I doubt whether many institutions are giving courses covering more than 60 hours. This leads to another problem of the teacher of commercial pharmacy, which is, to determine how best to utilize the time allotted to his subject.

The outline given in the Syllabus covers the subject quite well. It takes in bookkeeping, business correspondence, commercial and business law, property and business practice. The last-named heading includes such subjects as selection of location, financing, equipping, selling, advertising, and manufacturing. It is the most important topic and should take up from one-third to one-half of the time allotted to the course. Bookkeeping should take up about one-third of the time, and the balance can be used for the other subjects.

[The speaker then briefly outlined the course as given by him at the Medico-Chirurgical College of Philadelphia, and closed with the following remark:]

"The subjects in the curriculum of the pharmacy course may be likened to a series of colors which when blended in the proper proportion will produce a 'neutral gray.' When the subject of commercial pharmacy is added to the mixture of the other subjects of the course, in just the proper proportion, a perfect neutral gray results, but without it the blending is incomplete."

BUSINESS.

Business is a Jealous Servant; it is sensitive; it demands undivided attention; if neglected, its disfavor is shown in reduced profits; it will boss the inefficient man—play with him—tangle him—finish him. For the constant, consistent efficient man—for the man who knows all the ills to which business is subject—who governs the big things from positive knowledge of the little things—for that kind of man it works overtime. Stretching the earning capacity of every dollar, it grows, expands, earns, knowing only one limitation—the measure of its boss.—*The New Idea.*

THE TRADE PAPER.

The following remarks on the value of the trade paper were written by that master in the art of publicity, the late Elbert Hubbard, a short time before leaving America on the ill-fated *Lusitania:* "I know hundreds of high, prosperous business men, manufacturers, dealers, jobbers, craftsmen, and I cannot recall a single instance in which the mentally successful man does not read his specialized paper. He subscribes for it and he pays for it promptly. When you subscribe for your trade paper and assimilate it, you are uplifted, inspired, given courage, pep, intellectual vim and vigor and enough trade information to make you free from the trials and tribulations which beset the man who 'doesn't know.' These things all have a direct influence on the bank and mental balance. The trade paper binds everybody in the business into a fraternity, which spells length of days, because it 'serves' and its service is based on specific knowledge."

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 10.

PHILADELPHIA, PA., November 23, 1915.

To the Members of the Council:

GENTLEMEN:

As stated in Council Letter No. 9 (p. 24), Frank H. Freericks has raised the question that *Motion No.* 18 (*referring N. A. R. D. Resolutions in Council Letter No.* 14 *to Committee on National Formulary*) is out of order.

Chairman Eberle rules that: "Motion No. 18 is in order, the reference can be made with or without recommendation of the Council, or the Council could deal with the question itself without referring it. The construction of standards for whisky and brandy *may be* scientific matter, but the question of including standards for these articles in the National Formulary is one of general policy with which the Council has a perfect right to deal."

Since Motion No. 18 is in order, it should be stated that the motion has received a majority of affirmative votes.

Mr. Freericks now raises the technical plea that Motion No. 18 and his motion (Council Letter No. 5) are entirely independent—that his motion presents for action by the Council, as coming independently from one of its members, a set of resolutions which happen to be the same as those offered by the N. A. R. D. Mr. Freericks moves that:

"I move that the four separate resolutions as submitted by the National Association of Retail Druggists be also adopted by the Council, substituting the name of the Council of the American Pharmaceutical Association for that of the National Association of Retail Druggists. Of course this includes the one pertaining to denatured alcohol."

This motion has been duly seconded by C. T. P. Fennel and will be known as *Motion No.* 23 (*Adoption of Substituted N. A. R. D. Resolutions*).

A vote will be taken in two weeks from date on this motion.

Mr. Freericks has sent the following letters, both under date of November 20:

"Yours of the 18th inst. is just to hand, wherein you advise me that Chairman Eberle has held Motion No. 18 to be in order. I immediately wired you the following lettergram in answer:

"'Upon reflection must agree that Motion No. 18 was in order, since in substance a motion to refer, only the reasons given for making it were objectionable; but they cannot control submission, however, as pointed out Thursday. My motion in Council Letter No. 5 is independent, and respectfully urge its immediate submission.'

"As stated in the lettergram, the reasons given for Motion No. 18 were not in order and could not control. For the moment I overlooked that there need be no reason at all underlying a motion to refer, and consequently an insufficient reason can be in no worse position than no reason at all.

"I trust that in my lettergram and letter of Thursday I made clear that my motion offering for adoption certain resolutions as they appear in Council Letter No. 5 was an entirely independent motion, asking the independent action of Council on said resolutions, which I chose to make my own when offering them, though they had been submitted by the N A. R. D. in the first place. As matters now stand, Motion No. 18 simply means to refer the resolutions submitted by the N. A. R. D. without any action to the Committee on National Formulary. My motion, now duly seconded, presents for independent action on the part of the Council the exact same resolutions which were submitted by the N. A. R. D., but they are not before the Council as the resolutions of the N. A. R. D., but are before it as resolutions offered by me for independent adoption by the Council."

"Your special delivery letter of the 19th inst. reaches me after I again wired you this morning, and after dictating the enclosed other letter. I did not misunderstand the Caspari-Stewart motion, and fully have in mind that it meant to refer the N. A. R. D. Resolutions to the Committee on National Formulary without action on the part of Council. The point I make is that the Caspari-Stewart motion merely undertakes to refer the N. A. R. D. Resolutions as such; it did not undertake to include anything which I had submitted, and, in fact, could not do so, if I understand correctly, because my motion was not yet before the Council, since at that time it had not been seconded. However, if the Caspari-Stewart motion be adopted it would not preclude me as a member of Council from offering the exact same resolutions as were offered by the N. A. R. D.; in the one instance they would be the N. A. R. D. Resolutions, and in the other instance they would be my resolutions. The Council may for reasons of its own refer resolutions presented by the N. A. R. D. without taking any action, while it may at the same time decide to act upon resolutions presented by me which contain the self-same wording. That the subject-matter of the resolutions offered by me is properly for consideration by the Council is made plain in the ruling of Chairman Eberle on my point of order with reference to Motion No. 18. The Chair there rules, 'The question for including standards for these articles in the National Formulary is one of general policy with which the Council has a perfect right to deal.' Of course, I realize my position is exceedingly technical, but in this instance it serves my good purpose to be technical, though I prefer much not to be driven to the use of technicalities. Again, to sum up my position:

"First.—In Council Letter No. 5 I submitted certain resolutions, and moved their adoption by the Council. Said resolutions contained the same matter as was contained in resolutions offered by the N. A. R. D., but they were not the N. A. R. D. Resolutions, because they were expressly offered as the resolutions of the Council of the A. Ph. A.

"Second.—In Council Letter No. 8 appears the Caspari-Stewart motion to refer the N. A. R. D. Resolutions to the Committee on National Formulary. This motion was not to refer the resolutions offered by me for adoption by the Council, but was to refer the N. A. R. D. Resolutions. The motion could not be to refer the resolutions offered by me, because, not having been seconded, they were not then before Council.

"Third.—Since making the motion that the resolutions as offered by me be adopted, and after the Caspari-Stewart motion to refer the N. A. R. D. Resolutions, there has been a second for my motion to adopt the resolutions offered by me, and consequently my motion should now properly be submitted.

"Fourth.—While the motion offered by me embodies the exact same resolutions as were offered by the N. A. R. D., yet they are not the N. A. R. D. Resolutions, and the Caspari-Stewart motion was expressly restricted to refer the N. A. R. D. Resolutions. While, for reasons sufficient to it, the Council may see fit to refer without action a certain set of resolutions when offered by the N. A. R. D., they may also see fit at the same time to act upon the self-same resolutions when they are offered by one of its members.

"Am truly sorry that I have to be guilty of finding refuge behind technicalities in this matter, but, in my humble judgment, it will be very wrong not to take action on the important matter which is involved in this entire question."

Motion No. 24 (*Approval of Preamble and Resolution of Scientific Section in re Closer Coöperation between Educational, Manufacturing, and Banking Interests*). Moved by Dr. F. E. Stewart, seconded by G. M. Beringer, that the preamble and resolution adopted by the Scientific Section at the San Francisco meeting, looking towards a closer coöperation between educational, manufacturing, and banking interests as reported in Council Letter No. 9 (p. 31), be approved by the Council.

In this connection a communication from Dr. F. E. Stewart, chairman of the Committee on Patents and Trade-marks, is of interest. It is as follows:

"I read with much interest the resolution offered by Dr. A. R. L. Dohme at the San Francisco meeting of the American Pharmaceutical Association which appears on page 31 of the Council Letter No. 9.

"I agree with Dr. Dohme that it is generally admitted, at least by all students on the subject, that the commercial progress in Germany during the past two decades has been the result of a hearty and complete coöperation between the scientific and individual organizations of that country; also, that good financiers and business men concede that the application of science to the practice of the factory will produce similar results in this country. I agree with him that by applying the scientific training represented by our universities to practical use in our industries it will certainly result in great strides in our commercial growth.

"I also agree with the statement that the factories and the universities in America have stood aloof from one another, to the disadvantage of both, and I am in harmony with his resolution, which suggests calling a special meeting of representatives of the leading institutions of learning and of leading large manufacturing interests of the country, together with representatives of the leading banking interests, for the purpose of considering ways and means of generating and fostering a spirit of closer coöperation between them.

"One of the questions that such a body would have to consider would be the reason why the factories and universities in this country stand aloof from each other, or, more properly, why the universities stand aloof from factories. As I have devoted almost a lifetime to the study of this problem, and have talked with university men in various parts of the United States for many years past on this important subject; as I am chairman of the Committee on Patents and Trade-marks of the American Pharmaceutical Association, and as the object of the patent law is to promote progress in science and useful arts, I desire to call the attention of the Council to one of the reasons why the universities and factories of Germany cooperate, while the universities of America stand aloof from the commercial houses.

"Medicines and chemical products are excluded from patent protection in Germany, as they are also in France, Austria-Hungary, Italy, Japan, Denmark, Norway, Sweden, Portugal, Russia, and a number of other foreign countries. Consequently, the universities and other educational institutions are in position to impartially discuss new medicines and new chemical products, which they could not do if the products were commercially controlled and undergoing commercial introduction by advertising.

"In all the foreign countries referred to, exclusion from protection of inventions relating to medicines or foods does not generally extend to those relating to processes or apparatus for their manufacture. In all foreign countries which exclude chemical products from protection, except Switzerland, inventions relating to chemical processes may be patented, and in nearly all such countries it is expressly provided by law that a patent for a chemical process by which a new chemical product is made shall in effect cover such product, unless it be shown that such product was made, in fact, by some other process. In other words, when a new product is discovered, and a process of manufacture is patented, no person is permitted to compete with the original patentee until he is able to show that the process he is to employ for that purpose is not an infringement upon the patented process. The object of this proviso is, of course, perfectly apparent.

"I find that the medical scientists connected with our universities in this country are divided into at least two general classes; namely, those who take the same position as that of Lord Camden in his celebrated speech in opposition to copyrights, occurring in what is known as the 'Copyright War,' in Europe, about a century ago; namely:

"'Glory is the reward of science, and those who serve it scorn all meaner views. . . . It was not for gold that Milton, Bacon, Newton, and Locke instructed and delighted the world. When a book-seller offered Milton five pounds for his "Paradise Lost" he did not reject it and commit his poem to the flames, nor did he accept the miserable pittance as the reward of his labor; he knew that the real price of his work was immortality, and that posterity would pay it.'

"Medical scientists who take this position hold themselves aloof from anything that has to do with commerce in materia medica. They claim that they are working for 'pure science,' and that any coöperation with commercial interests on their part would destroy their judicial position, and, consciously or unconsciously, they would become mere advocates.

"The other class of medical scientists agree with Terrill, who, in his treatise on patent laws, says:

"'The theory upon which these laws rest is that it is to the interest of the community that persons should be induced to devote their time, energies, and resources to original investigation for the furtherance of science, the arts, and manufactures. This was recognized from the earliest periods which can pretend to be described as civilized. It is to the advantage of the whole community that authors and inventors should be rewarded, and no measure of reward can be conceived more just and equitable and bearing a closer relation to the benefit conferred by the particular individual than to grant him the sole right to his writing or discovery for a limited period of time.'

"This class of medical scientists would be glad to coöperate with the laboratory workers of the great commercial houses engaged in the chemical and pharmaco-chemical industries; provided the individuals, firms, and corporations engaged in these industries would conform to professional and scientific requirement in relation to the practice of these vocations and introduction of new materia medica products to science, and brands of the same to commerce.

"Professional and scientific requirements demand that the source or genesis, physical, chemical, physiological, and therapeutic properties, methods of preparation, standardization and uses of all medicinal drugs and chemicals, used for the prevention of disease and healing of the sick, shall be published, scientifically classified, and protected by a changeless nomenclature. Scientific and professional requirements also demand that this knowledge shall be impartially discussed and officially verified by competent observers; that the same shall be taught in the medical and pharmaceutical schools and embodied in scientific literature, including pharmacopœias, dispensatories, and text-books, which shall teach the truth, the whole truth, and nothing but the truth.

"Scientific and professional requirements also demand that the practice of medicine and pharmacy shall be conducted by persons properly educated, trained, and licensed by Boards of Examiners.

"It is evident that conformance with these scientific and professional requirements is positively necessary to secure coöperation between professional and scientific bodies on the one side and commercial bodies on the other. It is also evident that under such a system of coöperation new materia medica products can be introduced to science and brands of the same to commerce simultaneously through the professional channels of the medical and pharmaceutical societies and press, and the laboratories of the great commercial houses.

"It is also evident that so long as products themselves are commercially controlled and introduced by advertising such coöperation can never be secured. Commercially-controlled products cannot be freely or impartially discussed in the medical and pharmaceutical journals during the time they are being introduced to commerce by advertising, because those engaged in their manufacture and sale are opposed to the publication of anything in the journals that might injure the sale of their controlled products.

"Germany and most other foreign countries have realized this fact and its bearings upon medical and pharmaceutical science and education, and also upon the practice of medicine and pharmacy, and have consistently excluded from patent protection medicines, chemical products, and foods.

"I am sure that I am voicing the sentiment of our Committee on Patents and Trademarks when I say that one of the first subjects for such a committee as that proposed by the resolution of Dr. Dohme to consider should be that of materia medica monopoly, as related to our copyright, patent, and trademark laws; for unless the educational institutions can be protected from the dangers of commercial exploitation, on the one hand, and capital invested in original investigation by the manufacturer engaged in the chemical and pharmaco-chemical industries, on the other, there can be no coöperation between professional and commercial interests."

J W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 11.

Philadelphia, Pa., November 29, 1915.

To the Members of the Council:

Gentlemen:

Motions No. 21 (*Presentation of Proceedings to Denver Branch*) and *No.* 22 (*Additional Appropriation of* $100 *for Printing, Postage, and Stationery*) have each received a majority of affirmative votes.

Treasurer H. M. Whelpley writes (November 25, 1915) that: "Please send this statement out as a part of the next Council letter. When published in the Journal it will be convenient for reference by the entire membership."

The statement is as follows:

A. Ph. A. Income from Annual Dues.

Payments made *for* each fiscal year from 1900 to 1916 inclusive.

Compiled from the reports of Treasurer S. A. D. Sheppard for 1900–1908 and Treasurer H. M. Whelpley, 1909–1916.

The receipt of the annual dues *during* a fiscal year is influenced by the success of the treasurer in collecting delinquent dues, current dues, and the manner in which members pay dues in advance (for the next fiscal year). The amount of money received for dues *in* 1912 (Journal A. Ph. A., 1913, p. 1051) was comparatively large, because the fiscal year had just been changed to run even with the calendar year. The treasurer took advantage of the opportunity of collecting at one time $2.50 for the last six months of 1912 and also $5 for the fiscal year 1913. This saved postage and secured some payments that otherwise would have been lost.

The payment of dues *for* each fiscal year gives a comparative record of the actual supporting membership and demonstrates the fluctuations in the same.

The number of members paying *for* each year shows a general increase during the past fifteen years. In spite of the general business depression in this country, more members have paid dues for 1913, 1914, and 1915 than for any previous three years in the history of the American Pharmaceutical Association.

Fiscal year	Amount of dues paid for the year
1900 (July, 1900–June, 1901)	$4970.00
1901 (July, 1901–June, 1902)	5125.00
1902 (July, 1902–June, 1903)	5925.00
1903 (July, 1903–June, 1904)	6300.00
1904 (July, 1904–June, 1905)	6445.00
1905 (July, 1905–June, 1906)	7415.00
1906 (July, 1906–June, 1907)	7485.00
1907 (July, 1907–June, 1908)	8305.00
1908 (July, 1908–June, 1909)	8590.00

H. M. Whelpley was elected treasurer September 11, 1908.

Fiscal year	Amount of dues paid for the year	
1909 (July, 1909–June, 1910)		$9435.00
1910 (July, 1910–June, 1911)		9760.00
1911 (July, 1911–June, 1912)		9390.00
1912 (Jan., 1912–Dec., 1912)...	$1350.00	
Dues only............	28.50	
		$1378.50

The fiscal year was changed to run even with the calendar year.

1912 (July, 1912–Dec., 1912)		$ 4137.50
1913 (Jan., 1913–Dec., 1913)..	$10760.00	
Dues only............	59.25	
		10819.25
1914 (Jan., 1914–Dec., 1914)..	10497.00	
Dues only..........	24.00	
		$10521.50
1915 (Jan., 1915–Dec., 1915)..	$10265.00	
Dues only..........	52.00	
Miscellaneous dues...	9.25	
		$10326.25
1916 (Jan., 1916–Dec., 1916).........		880.00
Total......................		$127 208.00

"Dues only" members do not pay for the Journal.

"Miscellaneous dues" were received from members who paid up to the month they resigned.

H. M. Whelpley, Treasurer.

St. Louis, Mo., November 24, 1915.

It may be added that the Treasurer's statement gives the income from the annual dues only; it does not include the income from other sources, such as National Formulary, Proceedings, Journal advertising, subscriptions, etc. In 1913 and 1914 the income from such sources was over $6700 yearly.

Under date of November 26, 1915, the following communication had been received from Frank H. Freericks:

"Pertaining to Council Letter No. 10, and to my motion with reference to the deletion of brandy and whisky to be known as Motion No. 23: Am particularly grateful that a vote on this matter has been deferred by the secretary for two weeks. Just a word about the apparent contradiction which might be found in now adopting resolution offered by me, when the self-same resolutions coming to Council from another association have been referred without action thereon. It is plain that the resolutions as offered by me, and kindly seconded by Professor Fennel, will for all practical purposes appear as a reconsideration of the earlier action to refer, and I would ask all who are interested to look at it in that light. May I add that if two weeks' time had been given before calling a vote on the motion to refer, that then there is just a slight possibility that such motion would not have carried.

"Now very briefly as to the merits of the question: Brandy and whisky are substances of very frequent legitimate medical use. They have been recognized in the United States Pharmacopœia for many years. Such substances, or substances of a similar character and virtue, have been recognized by the pharmacopœias of most all, if not all, of the enlightened nations.

"Because of the tendency in our country toward a laughable narrowness concerning the legitimate use of such articles there is more and greater reason for their recognition here than anywhere else, and while I cannot speak from experience, I have very great doubt as to the quality of brandy and whisky which floats about in so-called Prohibition States. It is inconceivable that a body of intelligent men, having first decided that brandy and whisky should be recognized as heretofore, then turn about and decide upon their deletion, on the ground that they cannot agree upon a standard. Why should it be more difficult to agree upon a standard for them than it is to agree upon a standard for any other article regarding which there may be difference of opinion? Why should the Revision Committee of the Pharmacopœia and all honorable pharmacists of this country, who each of them is interested and in a measure responsible, be made the laughng stock of future generations, as having agreed or submitted to the deletion of these articles, when their legitimate use as medicines is at least fully in keeping with any other substance that is recognized, and only because it is made to appear that such will serve the cause of Prohibition?

"Since a course has been decided upon by a national representative body of retail druggists, which, at least in a measure, will tend to save pharmacy and pharmacists from ridicule, it seems but proper that, having failed to initiate a course of our own, we should at least give support to the other, all of which may still result in an even more satisfactory solution of the entire difficulty."

Under date of November 27, 1915, the following communication has been received from George M. Beringer:

"I am advised that at San Francisco the Council decided to expunge from the minutes the discussions relating to the discontinuation of Prof. C. Lewis Diehl as Reporter on the Progress of Pharmacy.

"Since that meeting there has been considerable correspondence and discussion in the Council relating to the election of Professor Diehl as Reporter Emeritus, and I am constrained to believe that we should now take an action similar to that taken at San Francisco. My regard for Prof. C. Lewis Diehl is such that I would not want to see his feelings hurt in the least degree, nor anything be published that might, at any time, be misunderstood.

"I believe that the best interests of the Association will be served and our regard for our former Reporter demonstrated if we leave in the published records only the record of the motions that have been adopted, without the comments or preliminary actions proposed.

"I will, therefore move that there be stricken from the minutes of the Council all reference to the discussions on this subject, and that there be retained simply a record of the motions made thereon and adopted."

The above motion is seconded by C. H. La Wall and will be regarded as *Motion No.* 25 (*Expunging Discussion on Discontinuance of Prof. C. Lewis Diehl as Reporter on the Progress of Pharmacy from Published Minutes in Journal*).

Motion No. 26 (*Expunging Discussion from Minutes Published in Journal on Financial Affairs of the Association*). Moved by Dr. F. E. Stewart, seconded by C. H. LaWall, that all references to the financial affairs of the Association as given in the Council letters since the annual meeting at San Francisco in August, 1915, be expunged from the minutes of the Council, when published in the Journal, except the motions.

Motion No. 27 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 22. Arthur Dussault, 268 Lisbon St., Lewiston, Me., rec. by M. L. Porter and J. W. England.

No. 23. Albert Falkenhainer, Algona, Iowa, rec. by G. Scherling and William B. Day.

No. 24. Fred Orville Blaylock, 1027 Mississippi St., Lawrence, Kan., rec. by L. D. Havenhill and G. N. Watson.

No. 25. Charles Joseph Innocent Charles, Cash and Sixth Sts., Colon, Republic of Panama, rec. by Anna G. Bagley and William B. Day.

No. 26. Robert Gordon Watson, 1103 Cook St., Denver, Col., rec. by W. T. Hover and F. W. Nitardy.

No. 27. James S. Potter, 138 Maple St., Richmond Hill, Long Island, N. Y., rec. by Otto Raubenheimer and E. E. Wyckoff.

No. 28. Boris Boxer, 1412 Washington Ave., New York City, N. Y., rec. by Jacob Diner and Gustave Horstmann.

No. 29. Frederick G. Dillemuth, M.D., 411 East 153rd St., New York City, N.Y., rec. by Jacob Diner and Gustave Horstmann.

No. 30. Philip Eichler, M.D., 1787 Washington Ave., Bronx, New York City, N. Y., rec. by Jacob Diner and Gustave Horstmann.

No. 31. Lurayne E. Kline, 703 East Thirteenth St., Indianapolis, Ind., rec. by Paul S. Pittenger and J. H. Beal.

No. 32. William H. Arndt, 4624 Fifth Ave., Brooklyn, N. Y., rec. by William C. Anderson and Jacob H. Rehfuss.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 12.

PHILADELPHIA, PA., December 6, 1915.

To the Members of the Council:

GENTLEMEN:

Motion No. 24 (*Approval of Preamble and Resolution of Scientific Section in re Closer Coöperation between Educational, Manufacturing, and Banking Interests*) has received a majority of affirmative votes.

Two weeks having elapsed since the submission of Motions Nos. 19 and 20 (Council Letter No. 9, p. 30), a final vote is now called for, the provisional vote having been taken on November 16. A voting card is enclosed for those who have not voted or wish to change their vote.

The following communication has been received from Frederick J. Wulling:

"Council Letter No. 9: Professor Fennel's contention that the Branches should hold meetings more frequently, etc., is, on the whole, proper. I would like the suggestion embodied in his motion discussed in the light of practicability and the association rules, and possibly a less drastic requirement could be agreed upon.

"Concerning Motion No. 19, I am not certain, but believe a motion such as this should originate in a general session of the Association. This should be determined before asking the general membership for expression. The replies, too, might swamp the Journal.

"I would not object to Motion No. 20 if the special committee of five were omitted. Otherwise, I vote in the negative, because I have no evidence that the services of the Finance Committee have been or are unsatisfactory.

"If the custodian of the Proceedings approves Motion No. 21, I vote 'Yes.'

"Record my affirmative vote on Motion No. 22.

"Concerning the Scientific Section resolutions referred to by Dr. Dohme and Editor Eberle, I would like to talk the matter over with our president before writing further. Personally, I favor both resolutions—at this writing, at least."

The following communication has been received:

COMMITTEE OF REVISION
of the
PHARMACOPŒIA OF THE UNITED STATES OF AMERICA.

PHILADELPHIA, PA., December 4, 1915.

To the Council of the American Pharmaceutical Association:

GENTLEMEN:

I have been requested by the Acting Chairman of the National Formulary Committee, Professor Scoville, to state to the Council the reasons for deleting whisky and brandy from the new Pharmacopœia. The action was taken after many months' consideration and debate. It would take a long time and much space to review all of the arguments. Forty members of the Committee of Revision out of the whole number (fifty) are members of the American Pharmaceutical Association, and they voted upon the question of deletion. In the Committee of Revision there are twenty-two members who have been retail druggists, and some are still active in the retail drug business; the views of retail druggists were ably presented. For these reasons it would seem proper for the undersigned to make a brief statement.

Spiritus Frumenti and Spiritus Vini Gallici, as we all know, are official in the present Eighth Revision of the United States Pharmacopœia. These standards were rendered inoperative by the act of President Taft, whose decision as to "What is whisky?" overruled the standards of the U. S. P. and admitted what are called "blends," while the present U. S. P. standards declare for "Straight whisky." President Roosevelt decided that the U. S. P. VIII standards were right, and they were approved by him. President Taft reversed the decision of President Roosevelt, and, as the question stands to-day, the U. S. P. standards are null and void.

It will thus be seen that if the President of the United States can rule out the standards for two articles in the U. S. P., why could he not rule out ten, fifteen, or twenty others if he was so disposed? What would be the use of retaining two articles in the Pharmacopœia, knowing that they would not be accepted by the Government? The establishment of a precedent for a book of standards is an important consideration from a legal point of view. The deletion of whisky and brandy from the Pharmacopœia does not interfere in any way with the sale of whisky throughout the United States. The laws of the United States and of the various States which govern primarily are not based in any way on the retention or deletion of whisky in the United States Pharmacopœia.

The Committee of Revision, I am sure, viewed this question from its technical point of view, and was nearly divided upon the question of retaining the standard for straight whisky. Others wanted a standard which would not exclude "blends" or various standards now in the Pharmacopœia. The N. A. R. D., of course, had a perfect right to question the judgment of the Committee of Revision and ask for a reconsideration. The third resolution of the N. A. R. D. —"That we ask the Board of Trustees of the United States Pharmacopœia to investigate fully the rumors which are afloat relative to the action of the Committee on Revision in deleting these two substances"—was undoubtedly passed in the heat of an argument at Minneapolis and without due consideration. If the N. A. R. D. had any definite charges to make of any wrong-doing on the part of the Committee of Revision, they should have been preferred.

On the other hand, the publishing of this resolution hinting at wrong-doing on the part of the Committee of Revision looks very much like vindictiveness. The Chairman of the Revision Committee was visited by the solicitor of the National Wholesale Liquor Dealers' Association immediately after the decision of the Committee of Revision. He desired, on the part of his association, to have the decision reversed. The Chairman promised to receive any communication from this association and place it before the Committee of Revision, but no communication has been received and no action was taken. The Chairman informed the solicitor that the vote was final, unless a reconsideration in parliamentary manner was voted upon by the committee.

The Committee of Revision cannot afford to rest under any intimation of wrong-doing based upon "rumors." The undersigned deeply regrets that the hasty passage of the resolutions and subsequent publication throughout the pharmaceutical press should have been made. The Chairman of the Revision Committee is satisfied that no charge of wrong-doing can be sustained, and he is unwilling to believe that the decision to delete whisky and brandy from the Pharmacopœia was based upon anything else but the honest judgment of each member.

Very truly yours,
JOSEPH P. REMINGTON.

The following communication has been received:

CAMDEN, N. J., November 27, 1915.

To the Council of the American Pharmaceutical Association:

GENTLEMEN:

On behalf of the Committee on Unofficial Standards, I submit the following supplemental report:

We have adopted monographs covering the following titles and these have been sent to the Editor for publication in the Journal of the American Pharmaceutical Association:

Æther Aceticus.
Calcii Lactophosphas.
Lithii Salicylas.
Malvæ Folia.
Mangani Sulphas.
Potassii Sulphas.
Scoparius.

I believe that the above titles complete the list of substances not contained in the United States Pharmacopœia, for which standards will be needed in the National Formulary.

Respectfully submitted,
GEO. M. BERINGER, Chairman.

The following budget of appropriations for 1916 is submitted by the Committee on Finance:

Proposed Budget of Appropriations for 1916.

Appropriations for general expenses:

No. 1.	Salaries	$6150	
No. 2.	Printing postage and stationery	1000	
No. 3.	Clerical expenses: secretary's office	416	
No. 4.	Miscellaneous expenses	200	
No. 5	Stenographers	350	
No. 6	Travelling expenses	200	
No. 7.	Committee on Membership	250	
No. 8.	Committee on Unofficial Standards	100	
No. 9.	Year Book	2500	
No. 10.	Premium on treasurer's bond	50	
No. 11.	National Drug Trade Conference	100	
No. 12.	Journals for reporter	35	
No. 13	Section on Scientific Papers	25	
No. 14.	Section on Education and Legislation	25	
No. 15.	Section on Commercial Interests	25	
No. 16.	Section on Practical Pharmacy and Dispensing	25	
No. 17.	Section on Historical Pharmacy	25	
No. 18.	Women's Section	25	
No. 19.	National Syllabus Committee	25	
			$11 526

Appropriations for open accounts:

No. 20.	Journal		$5750	
No. 21.	(*a*) Publication	$4500		
	(*b*) Clerical expenses	800		
	(*c*) Postage and stationery	300		
	(*d*) Freight drayage and miscellaneous	150		
No. 22.	National Formulary		1000	
No. 23.	Badges and bars		50	
No. 24.	Certificates		50	
				6.850
				$18,376

Do you approve of budget of appropriations for 1916 as above proposed? This will be regarded as *Motion No.* 28 (*Approval of Budget of Appropriations for* 1916).

J. W. ENGLAND,
Secretary of the Council.
415 N. 33rd St., Philadelpha, Pa.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

BALTIMORE

The annual meeting of the Baltimore Branch, American Pharmaceutical Association, was held in the Assembly Hall of Hynson, Westcott & Company's Pharmacy, Wednesday, January 19, 1916.

The secretary-treasurer presented a *résumé* of the year showing the activities of the Branch and containing a statement of its financial condition, which in comparison with previous years was very satisfactory.

He explained that the balance in the treasury was due solely to the courtesy of Messrs. Hynson, Westcott & Company in extending the use of the meeting-room gratis, as the only expenditures were for stationery, multigraphing, and postage.

He expressed particular appreciation of the activities, interest, and attendance of the pharmacisters, and especially mentioned the May meeting, at which they prescribed various cooling, heating, and nourishing preparations for the inner man, and incidentally remarked that their prescriptions did not fall under the ban of the Harrison Act and could be repeated at a future occasion.

The committee appointed to endeavor to arrange for a series of talks by Dr. Caspari on the changes in the new Pharmacopœia reported that inasmuch as he had been indisposed as the result of a grip attack, and also as it would not be issued for several months, the matter had better be postponed to a future date, at which time it was practically certain that he would favor us along these lines.

The committee appointed to consider the advisability of condensing the Branch into a more compact body reported that it was thought best for all the interests concerned for such an organization as the Branch to exist in Baltimore and the other cities, as it was a body which could embrace any or all of the pharmaceutical interests in its membership, and also because any limitation of its membership would cause it to cease to be a part of the parent association.

The report was considered thoroughly and considerable time was spent in discussing the whole subject of the past, present, and future of the Branch, and the same conclusions as the committee's were reached. It was suggested that if a small number of congenial pharmacists wanted to form such an organization, nothing was to prevent them from doing so.

Notice was given that a resolution would be presented at the next meeting to add to the list of committees a Social Committee, to be composed exclusively of the pharmacisters, with Miss Patterson as the first chairwoman.

The annual election resulted in the following officers being elected to serve for the ensuing year: President, Louis Schulze; vice-president and chairman Executive Committee, Charles L. Meyer; secretary-treasurer, Wm. J. Lowry, Jr.; assistant secretary, Miss Olive Cole. Chairmen of committees: Membershop, Otto Muelhause; Professional Relations, Henry P. Hynson; Science and Practice of Pharmacy, Charles C. Neal; Education and Legislation, Henry E. Wich; Social, Anna M. Patterson.

WM. J. LOWRY, JR., Secretary.

CHICAGO.

The January meeting of the Chicago Branch of the American Pharmaceutical Association was held Tuesday evening, January 18, 1916.

The treasurer's report indicated receipts during the year of $62.30, expenditures of $65.80 and a balance of $12.75.

As the result of the annual election the officers and committee chairmen for the ensuing year are the following: President, Hugh Craig; first vice-president, A. H. Clark; second vice-president, John F. Fischnar; third vice-president, Miss Jean Gordon; Council Member, Clyde M. Snow; secretary-treasurer, E. N. Gathercoal, 74 East Twelfth Street. Chairmen of committees: Membership, C. C. Orr; Legislation, James H. Wells; Practice, S. K. Sass; Medical Relations, Dr. Bernard Fantus; Publicity, Thomas Potts.

The principal feature of the evening was an address by Dr. Prentiss McKenzie, who presented an illustrated lecture on the production of biological products. He used moving pictures taken at the H. K. Mulford & Co.'s farm at Glenoble, Pa.

The lecture and pictures were very fine and were well received by the audience of about 75 members and friends.

E. N. Gathercoal, Secretary.

CINCINNATI.

The regular monthly meeting of the Cincinnati Branch, American Pharmaceutical Association, was held at the Lloyd Library, January 11, 1916.

After disposing of the routine business, President Charles G. Merrell introduced the speaker of the evening, Dr. Edward B. Reemelin, Professor of Chemistry, University of Cincinnati, who chose as his subject "Modern Trend of Biochemistry." The doctor pointed out the fact that the subject of biochemistry should be of especial interest to the pharmacist in view of the continuous chemical disturbances taking place in the human economy. "We look at life with a broader view through biochemistry, specializing the chemistry of the various products of life."

The lecturer mentioned the important rôle salt plays in the animal existence, not only as the deer hunts the "salt-lick," but he cited that the ancient people often accepted salt in place of gold and silver in their barters.

He called attention to the first synthetic production of urea by Dr. Wöhler in 1828, which totally upset the older views of animal life; he gave prominence to the excellent work done by Liebig, Fischer, and others to further our knowledge of this branch of chemistry; he spoke of the process of digestion, the same being one of hydrolysis, dehydrolysis, and again hydrating, finally forming colloidal solutions; of the action of strong alkalies destroying the enzymes, and why pepsin and hydrochloric acid are both necessary in digestion; how uric acid, when not eliminated, causes disease; how all changes taking place in the body may be considered colloidal changes, and many other valuable and instructive points.

The doctor was heartily thanked by the members, after which a general discussion took place.

Charles A. Apmeyer, Secretary.

DETROIT.

The January meeting of the Detroit Branch of the American Pharmaceutical Association was held at the laboratory of Frederick Stearns & Company, Friday evening, the 21st.

President Scoville called the meeting together at 8:30 P.M., about forty being present.

The speaker of the evening was Mr. Joseph Abrahams, his subject being "Toilet Soaps."

Mr. Abrahams read a history of toilet soaps from the time they were first used down to the present. He also gave a description of the ingredients and processes used in their manufacture. A miniature working model of a soap plant was then put in operation and the soap displayed in its various forms until finally completed.

A very interesting discussion followed.

On motion of Mr. Hall a vote of thanks was passed to Frederick Stearns & Company and Mr. Abrahams for kindness extended to the Branch.

A. A. Wheeler, Secretary.

NASHVILLE.

The regular meeting of the Nashville Branch of the American Pharmaceutical Association was held in the Music Room of the Nashville Y. M. C. A. Building, Thursday afternoon, January 27, in joint session with the Nashville Drug Club, President E. F. Trollinger in the chair.

A report of the nominating committee showed that a ballot containing three nominees for each office had been mailed to each member of the Branch.

On motion, a committee composed of F. L. Smith, Dr. J. R. McDaniels, and W. R. White was appointed to canvass the ballot and report the result at the next meeting.

Mr. E. A. Gilliland, sales manager of The Spurlock-Neal Company, was a guest of the meeting and delightfully entertained the members with a talk on the all-absorbing question of price fluctuation.

He began by telling of the unusual condition prevailing in the quinine market. The greater part of the cinchona bark, he said, comes from Java and is controlled by a Dutch syndicate which has an agreement with the manufacturers of the alkaloid to deliver only a certain amount of the bark each year. It is sold in Amsterdam and in London at auction, and is distributed to the different countries, the larger part going to Germany. Our recent unusual export demands from Italy, South America, and England sent the price skyward. The high price induced many who held stocks to throw them on the market, which caused the price to recede somewhat. Stocks of the larger houses are now limited, and any unusual demand is likely to cause another advance.

Antipyrine, potash salts, and many other imported German chemicals are high and scarce on account of the supply being cut off by the Allies. The recent high price of mercury is caused by the embargo placed on it by England, it being used in making fulminate of mercury, an explosive; by the Mexican disturbance, and by the closing of the Panama Canal. Some has been shipped through Mexico by rail, but has been delayed by the freight congestion at Galveston.

Some belladonna has been received, but it is still high.

The supply of castor oil in the United States is about exhausted. The castor beans come from India, and the scarcity of tonnage, the high freight and insurance rates, and the extra tax placed on them by the British India Government have caused the supply to be almost cut off. It will probably be March or April before relief will come.

The price of carbolic acid will come down soon, he predicted. Much is being made here now, but it is sold on contract and shipped out of the United States. Many complaints are received about the offensive odor of the acid made here.

Some recent rulings on the Harrison law were read and discussed and copies of the rulings distributed to the members.

Dr. J. O. Burge entertained the members by reading an article recently written by Mr. W. H. Cousins.

After several good talks showing the advantages in joining the American Pharmaceutical Association the meeting adjourned.

WILLIAM R. WHITE, Secretary.

NEW YORK.

Minutes of the regular meeting of the New York Branch of the American Pharmaceutical Association, held at the New York College of Pharmacy Building, January 10, 1916. Called to order by President Lascoff at 8:45 P.M.

The minutes of the December meeting were read and ordered adopted.

Treasurer Weinstein's report was received with thanks.

Member of the Council Mr. McElhenie rendered a report covering Council matters in general.

Dr. Diekman, chairman of the Committee on Progress of Pharmacy, read a very interesting and lengthy report, consisting of abstracts covering many important subjects.

No reports were received from the Committees on Legislation and Education, Membership, or Fraternal Relations, as the chairmen of the respective committees were not present.

H. V. Arny, chairman of the Committee on Nominations, reported as follows: For president, J. Leon Lascoff; vice-president, J. C. Gallagher; secretary, Jeannot Hostmann; treasurer, J. Weinstein; chairman of the Committee on Legislation and Education, Dr. Wm. C. Anderson; Progress of Pharmacy, Dr. George C. Diekman; Membership, Dr. Frank L. McCartney; Fraternal Relations, Dr. Jacob Diner.

The report of the committee was received and the committee was discharged with thanks.

Several communications from the General Secretary regarding resignations of members were read and referred to the Membership Committee, as was also a letter from Mr. William H. Smith.

Applications for membership were received from William A. Smith, 188 East 93rd Street, New York, and Herman Walter, 213 Second Avenue, New York, and they were ordered forwarded to the General Secretary.

Mr. McElhenie, upon being called to the chair by President Lascoff, was directed to cast a ballot for the nominees as per the committee's report. After declaring the respective candidates elected he called Dr. H. V. Arny to the chair to act as installing officer.

President Lascoff appointed the following as a committee to coöperate with Local Secretary Holzhauer for the Atlantic City Meeting: Dr. Henry C. Lovis, chairman; Thomas

F. Main, John C. Gallagher, Jacob Diner, and Jeannot Hostmann.

Dr. Robert P. Fischelis, of the Medico-Chirurgical College of Philadelphia, then read a very interesting paper, entitled "The Teaching of Commercial Pharmacy." The president called upon Mr. Charles Holzhauer to open the discussion, and he was followed by many of the members, all of whom agreed that the question was one of vital importance. Dr. Diekman insisted that there was no doubt that the commercial side deserved more attention, but that it should not receive it by taking time away from the teaching of theoretical pharmacy.

The very spirited discussion was carried on for about one hour, and the speaker was then given a rising vote of thanks.

Mr. Emil Roller now entertained the members with a few remarks on the birthday of Dr. Hermann Hager, and presented to the Branch a photograph of this illustrious pharmacist. The Secretary was ordered to send the donor a letter expressing the thanks of the members.

The Secretary was ordered to send a telegram of felicitation to Editor Eberle, to whom the Philadelphia Branch was tendering a welcome dinner on January 14.

Upon motion the meeting adjourned at 11:15.

JEANNOT HOSTMANN, Secretary.

PHILADELPHIA.

Pharmaceutical Philadelphia, on the evening of January 11, opened wide her arms and extended a most hearty welcome to Eugene G. Eberle and the Journal of the American Pharmaceutical Association, of which he is the editor. It was a welcome through which ran an undercurrent of satisfaction that Philadelphia was chosen as the home of the publication of the premier pharmaceutical organization of the country.

Representatives of every pharmaceutical organization in the city and state, as well as of the Philadelphia Chamber of Commerce, were assembled about the banquet board at the Hotel Rittenhouse to tell of their appreciation of the new honor that had come to the city, already so rich in pharmaceutical history, and of their pleasure in having with them again the man who, since he said goodbye to his Alma Mater here away back in the eighties, had done so much for pharmacy and its representatives.

Mr. Eberle, who with Mrs. Eberle and their niece, Mrs. Galbraith, were the guests of the evening, was quite overwhelmed by the warmth of greeting by these old and new friends. Not alone were these felicitations from the representatives of pharmacy, for equally hearty was the welcome of the representatives of medicine and of the business and commercial life of the city. Friends and organizations in other cities by letter and by telegram conveyed their well-wishes.

The dinner and reception were arranged by a committee of the Philadelphia Branch, and the attendance was most representative of the interests with which Editor Eberle will be associated in his work here.

Following the dinner, a brief business session was held by the Branch, in the course of which Charles Holzhauer, of Newark, N. J., local secretary for the 1916 Convention of the American Pharmaceutical Association at Atlantic City, suggested that the New York and the Philadelphia Branches of the parent organization, with the New Jersey Pharmaceutical Association, take separate days for entertainment features rather than to try to unite in arranging that portion of the program. He was of the opinion that bringing the ladies to Philadelphia on one day for a tour of its places of historical interest, and then having the men come up on another day to visit some of the manufacturing plants identified with the drug trade, would be most gratifying to the visitors as Philadelphia's portion of the entertainment. When he suggested the appointment of a committee of five, with the local president an *ex-officio* member, to coöperate in the furtherance of these suggestions, a motion to that effect was carried unanimously.

Samuel C. Henry, the president of the Philadelphia Branch, acted as toastmaster, and in his opening remarks spoke of the gratification of the Philadelphia pharmacists that their city had been made the home of the Journal of the American Pharmaceutical Association, and described the present occasion as a big family gathering at which those present wished to express some of the thoughts that lie upon their hearts and to express appreciation of the honor that has come to the local pharmacists and to Philadelphia.

The office of the Journal has been established in the rooms of the Philadelphia Drug Exchange, and the first speaker, John Fergusson, president of that time-honored organization, spoke in a humorous vein of the many new evidences of bustle and energy that were apparent since Editor Eberle had been installed there on January 1. On behalf of his organization, which includes the manufacturing and wholesale interests of the city and vicinity, Mr. Fergusson extended a most hearty welcome, and expressed the hope that in its new atmosphere and surroundings the Journal and its field of usefulness would be broadened and enhanced in value, and that the guest of the evening would be spared to direct its progress for many years to come.

In speaking for the Chamber of Commerce, Howard B. French, who is the president of the Philadelphia College of Pharmacy, declared that during the forty-nine years he had been connected with pharmacy he had found the representatives of the profession proverbially modest. He said that they, like Philadelphia, were entitled to stand in the foremost rank. In conveying the welcome of the city through the Chamber of Commerce, Mr. French stated that it was "the greatest city on God's earth, and there is more home comfort to the square inch in our city than on any other spot on the globe." He spoke of the proposed plan to have the delegates at the 1916 convention visit this city, and pledged the coöperation of the Chamber of Commerce, which, with its 5000 members, "is the strongest commercial organization in the world."

Dr. S. Solis Cohen, of Jefferson Medical College, and Dr. Henry Beates, Jr., of the University of Pennsylvania, agreed that both the medical and pharmaceutical professions would be strengthened by this valuable acquisition to Philadelphia's institutions.

The toastmaster facetiously introduced the next speaker, Joseph P. Remington, as the "oldest living pharmacist and the man who founded the Philadelphia College of Pharmacy." Professor Remington referred with pride to the fact that there were eight members of the Board of Revision of the United States Pharmacopœia present. In referring to the assistance which that committee, of which he is the chairman, had received from other organizations, he mentioned particularly the National Association of Retail Druggists and its accomplishments along propaganda lines. He spoke of his long acquaintance with Mr. Eberle, dating from the time the latter was a student in the Philadelphia College of Pharmacy, and in closing shook hands with his former pupil and said: "I have a particular pleasure in welcoming you back to the city of which, I know, you have many pleasing recollections."

Dr. Julius W. Sturmer, dean of the Department of Pharmacy of the Medico-Chirurgical College, told of the warm welcome and coöperation that had been extended to him when, a few years ago, he, like Mr. Eberle, had come to Philadelphia to take up educational work. Mentioning the physical resemblance between the guest of the evening and himself, he referred humorously to an occasion when he was mistaken for the editor of the Journal. He declared, therefore, that in welcoming his distinguished friends he did so with particular pleasure and a sense of possible reflected glory.

Dr. John R. Minehart, dean of the Department of Pharmacy of Temple University, urged that educators in pharmaceutical colleges be impressed with the debt that pharmacy owes the American Pharmaceutical Association, and that they carry that impression along to the students in their classes.

And then came an ovation for Editor Eberle as Toastmaster Henry formally introduced him to this gathering of warm friends. Declaring that the pangs due to the severing of the ties that had bound him to his good friends in Texas for thirty years were partly softened by the pleasure of being welcomed so warmly by his friends in Philadelphia, he said in part:

"We have come here not because we wished to, but because the Association said it was my duty. I hope I did not make a mistake and that I will be able to fulfil all of the wishes of the Association. The Journal needs the help of every member of the Association. And I feel that with the help that you have so generously proffered me, the membership of the Association should be greatly increased everywhere, but particularly in and about Philadelphia. I have in mind a few changes in the Journal, some of which will be made in the forthcoming issue. I hope they will be welcome."

He closed with a plea for continued advice and assistance for himself and his work from his Philadelphia friends, to whom he felt so close by meeting them that night.

The meeting closed with the reading of communications conveying to Editor Eberle the well-wishes in the new field from Professor Otto Raubenheimer, of Brooklyn; Mr. and Mrs. John G. Godding, of Boston, Mass.; Joseph L. Lemberger, of Lebanon, Pa.; Caswell A. Mayo, of New York, and the New York Pharmaceutical Association.

PITTSBURGH.

The January meeting of the Pittsburgh Branch of the American Pharmaceutical Association was held Friday, the 21st.

The feature of the program was a paper on "Tuberculins," which proved one of the most thoroughly instructive treatises on that topic and the disease which they are intended to combat that has ever been written. It was contributed by Dr. Leasure K. Darbaker, of the Chair of Bacteriology of the Pittsburgh College of Pharmacy. Dr. Darbaker said in part:

"Tuberculosis was, without doubt, recognized and described by the early writers of medicine, but at that time it was known only under the general name, 'consumption'—a name that to the present day is still in common use. This name was given the disease from the fact that patients dying from it have certain symptoms, such as loss of weight, good appetite, morning cough, night-sweats, and, although in apparent good health, going down slowly and easily to certain death—each sufferer always hopeful to the latest minute of life. Upon opening the bodies of these patients nodules or tubercles were found in the various affected parts; hence this name.

"Tuberculosis is a simple infection, caused by the *Tubercle streptothrix,* and is rarely fatal. The body, in protecting itself, forms a wall around the invading organism; hence the tubercle.

"Consumption is a complex infection in which the various streptococci and staphylococci are associated with the tubercle organism. The streptococci and staphylococci attack and tear down by liquefaction the walled-up tubercles, and this is the material coughed up by the pulmonary consumptive. It is a consuming disease which, unless properly treated in time, always causes death.

"Koch claimed that the bovine type organism could not infect man, and this was the general belief previous to 1901, when Smith and others conclusively proved that, although the tuberculosis of cattle and that of man were caused by different organisms, yet the type of one could and would infect the other. It is now known that practically all the human tuberculosis of the abdominal cavity, intestines, bones, skin, and glands is an infection caused by the bovine type organism.

"The pulmonary type of infection is the most common. It is caused by the human type organism and is acquired by the inhalation of the organisms in dried sputum. Tuberculosis is not inherited, but as the babe is in constant association with the tuberculous mother, who will throw out in one day millions of organisms by coughing, which organisms are carried a distance of five or more feet (instances are frequent where they are carried as many as seventeen feet), the babe, having weak lungs, readily acquires the disease.

"In practically all autopsies tubercles or healed lesions are found, showing that all, or nearly all, persons have at some time had a tuberculous infection."

After a lengthy and somewhat complicated account of the numerous methods that have been introduced for the prevention and treatment of tuberculosis, Dr. Darbaker mentioned the several types of tuberculins in use, and stated that it is thought by some authorities that tuberculin produces an inflammatory reaction around the tuberculous areas which may cause the dissemination of the organisms.

"All tuberculin injections are dangerous, and on several occasions physicians have made the bold statement that 'they have helped many patients to the Great Beyond by the administration of tuberculins.' Probably the therapeutic value of tuberculin depends upon the formation of antibodies which are produced throughout the whole animal body, while the antibodies produced by the disease are only produced by the tissues directly involved. Dr. Sahli states that 'tuberculin treatment is not an active immunization pushed to its fullest limits, but rather is a stimulant to the natural functions of the body.'" Dr. Darbaker concluded his paper with the statement: "We are still experimenting; we are not dealing with a specific; we are striving for the extermination of one of the world's greatest scourges; it matters but little how this may be accomplished. Up to the present day it will not cure alone, but with proper care and surroundings tuberculins may have aided and hastened some cures."

Preceding Dr. Darbaker's lecture, the Branch elected officers as follows: President, George W. Kutscher; vice-presidents, Peter G. Walter, Leasure K. Darbaker, Jesse J. Doyle; secretary, Benajmin E. Pritchard; treasurer, P. Henry Utech.

The Secretary directed attention to the valuable and instructive character of the literature concerning drugs that is being sent out by the United States Department of Health, and advised the members to have their names enrolled with the Department for the purpose of regularly receiving the little publications as they are issued.

B. E. Pritchard, Secretary.

SAN FRANCISCO.

The San Francisco Branch of the American Pharmaceutical Association met on the evening of January 11, in the office of the Pacific Pharmacist. After roll-call and the reading of the minutes of the December meeting, reports of standing committees were heard. Several communications asking information about the time and place of the Branch meetings were read, and these prove that an interest is being aroused among many of our dormant members. The membership committee reported progress.

Owing to the fact that the County Medical Society meets every Tuesday evening it was deemed advisable to change the meeting night to the second Thursday. The report of the treasurer showed no disbursements and a neat surplus.

A demonstration of "neat package finishing" was given by President Lengfeld. So often the products of a pharmacy are judged by their outward appearances and the speaker impressed the importance of extreme neatness in package finishing. Various containers were made, and this part of the program proved very delightful.

Articles from several pharmaceutical journals were read in abstract. Candy medication, as suggested by Dr. Fantus in a recent journal of the American Medical Association, was favorably discussed.

The Branch will meet again on February 10, at 723 Pacific Building. The sealing of soft gelatin capsules will be demonstrated. Mrs. R. E. White is in charge of the evening's program.

Clarissa M. Roehr, Secretary.

CITY OF WASHINGTON.

The January meeting of the City of Washington Branch of the American Pharmaceutical Association was held at the National College of Pharmacy on the evening of January 26, 1916.

Messrs. Kebler, Palkin, and Ewing presented a paper in which they reported the results of a comprehensive investigation on the keeping qualities of spirit of nitrous ether. The study was undertaken to determine the influence of a variety of factors on the decomposition of nitrous ether. Among the factors under observation were the presence of water, the effects of refrigeration, exposure to air, exposure to light, and the selective effect of keeping under varying conditions.

Using the commercially available concentrated nitrous ether it was found that this product itself was comparatively stable, and that diluted solutions of it in official alcohol and in anhydrous alcohol keep very well under all ordinary conditions for at least six months. Even at the end of 18 months no very marked deterioration could be shown in preparations kept with ordinary precaution.

The conclusions reached were that there was absolutely no demonstrable excuse for the very poor quality of spirit of nitrous ether frequently met with.

The problems involved were further discussed by Messrs. Flemer, Kalusowski, Bradbury, Wilbert, Kebler, and Palkin, and the point was made that the druggist, being responsible for the products sold or dispensed by him, should assure himself from time to time that the spirit of nitrous ether on his shelves complies with the requirements of the Pharmacopœia.

The need for including whisky in the Pharmacopœia was discussed at some length in connection with the following preamble and resolutions, which, after a free discussion, were unanimously adopted:

"Whereas, It is proposed to delete whisky and brandy from the Pharmacopœia of the United States of America, because of the difficulties involved in devising equitable standards and readily applied tests; and

"Whereas, The standards and tests heretofore included in the Pharmacopœia did not guarantee an article of unquestioned purity; and

"Whereas, It is practically impossible to control or to determine the purity of whisky or brandy by chemical means alone; and

"Whereas, The Government of the United States (for whisky) and the Government of France (for brandy) provide adequate means for securing these products of unquestionable purity and readily-controlled quality; now therefore be it

"*Resolved,* That we, the members of the

City of Washington Branch of the American Pharmaceutical Association, recommend that American pharmacists who are willing or anxious to supply whisky or brandy of good quality for medicinal purposes become acquainted with the existing provisions for securing these products of unquestionable identity and of reasonable purity; and be it further

"*Resolved,* That we, the members of the City of Washington Branch, endorse the proposed deletion of so-called standards for whisky and brandy from the Pharmacopœia of the United States of America."

Mr. Bradbury, in opening the discussion, said it would be interesting to know who really was the instigator of the agitation to include whisky and brandy in the Pharmacopœia. He felt sure that such a move did not come from the legitimate drug trade, as in sections of the country, like the District of Columbia, where druggists were not allowed to sell whisky, the drug trade would be loath to have the responsibility for the sale and distribution of whisky forced back on its hands.

Mr. Richardson said that from his experience prescriptions for whisky are extremely rare and would certainly not warrant the including of whisky or brandy in the Pharmacopœia.

Dr. Harvey W. Wiley reviewed the recent six-year controversy over whisky in the Pharmacopœia, and expressed himself as being heartily in favor of the resolutions as presented. He asserted that the requirements included in the U. S. P. VIII and the requirements, as outlined in a recent number of the Journal of the American Pharmaceutical Association, which had been proposed for inclusion in the U. S. P. IX would not suffice to detect adulterated or sophisticated whisky or brandy.

For the retail druggist who is willing to handle absolutely pure whisky or brandy for medicinal purposes the provisions made by law are ample. Dr. Wiley expressed the belief that the nature of these provisions might be explained so as to point out to well-meaning pharmacists how they might safeguard themselves and their customers. For whisky the double-stamp or bottled-in-bond product is guaranteed by the United States Government to comply with the statement made on the strip label over the cork of the bottle.

While it is true that this label does not in any way guarantee the composition of the original distilled spirits, there are economic reasons for accepting the label as a guarantee of quality. It would not be likely to pay a distiller to have money tied up in a bonded warehouse unless he were reasonably sure of finding a ready market for his product when it is ready for sale.

For brandy the provisions made by the French Government in connection with the now well-known white certificate, or "*Acquite Blanc,*" are even more comprehensive. This certificate guarantees a genuine product made from a good quality of wine, and this is, so far as Dr. Wiley knows, the only form of brandy fit for human use. American brandies, so far as known, are vile concoctions made from fermented mixtures of sugar and pomace or the distillation of so-called "sick wines," many of them very sick and unfit for use.

With these additional suggestions as to how the retail druggist can secure a good quality of whisky and brandy, Dr. Wiley thought the resolutions quoted above would be timely and of value to the drug trade, particularly in view of the fact that he had just learned from the chairman of the U. S. P. Committee of Revision that the proposition to reconsider the vote to delete whisky and brandy had been voted down by a decided majority of the members of the committee, despite the fact that several members who had previously voted for deletion had also voted for reconsideration. This vote, he believes, definitely disposes of whisky in the Pharmacopœia, and the publication of the U. S. P. IX will now proceed unhampered by vexatious questions of policy.

S. L. Hilton, Secretary.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

THE NATIONAL TRADE ASSOCIATION OF AMERICA.

The National Trade Association of America has been organized, with George B. Caldwell, of Sperry Hutchinson Company, as president; Percy S. Straus, of R. H. Macy & Co., as vice-president; Harry B. Haines, of the News Printing Company, treasurer, and Louis Barnet, acting secretary. It has been reported that the activities will include a campaign against the Stevens-Ayres bill; the objects set forth in the constitution of this association are:

"To promote the impartial and scientific study of business conditions in all sections of the country and present the result to the members and to the public; to investigate means of securing better markets for producers, diminishing the expense of distribution and reducing the cost to the consumers; to encourage scientific and uniform legislation intended to foster trade and commerce, and to oppose and arouse public sentiment against legislation which seeks to shackle trade and commerce or to hinder the free play of competition in the supply or price of commodities in the interests of the few and to the injury of the many; to create a national league of practical men engaged in trade and commerce whose efforts shall be directed through a non-political, constructive association to establish a clearer understanding of the commercial needs of the whole country and of its various sections and of governmental regulation thereof or interference therewith."

PHARMACISTS IN GOVERNMENT SERVICE SHOULD HAVE GREATER RECOGNITION.

Medical men are seeking to have the number of their profession in the government service increased. While they may have stronger argument in their favor, relatively, at least, there are good and sufficient reasons for asking that better recognition be given to pharmacists. The war in Europe has evidenced the necessity for having trained pharmacists—and our experience during the Spanish-American War should have served as a lesson, when many more soldiers died from disease than from bullets.

Dr. George F. Payne, in a communication to the Druggists' Circular, says "that, while the pharmacist is a commissioned officer in the navy, in the army he is still not as well paid as, and is outranked by, the musicians and those who take care of the sick mules. There was no intention in the present organization to consider sick mules as more important than sick men; it was done on account of obsolete methods which were adhered to in the matter. It certainly seems a very narrow and out-of-date policy for the whole hospital corps of the United States army not to contain a single commissioned officer. The pharmacists in the armies of nearly every country in the world rank from lieutenant to colonel, and in France they often go as high as brigadier-general. England and the United States are the only two civilized countries who do not give commissions to their army pharmacists. Japan gives them commission as second lieutenants.

"The strenuous and important work done by the hospital corps of the various armies of the world requires capable and efficient men. In the United States army good hospital corps men are picked out to do X-ray photographing and much other important electrical work. They are called upon for chemical work, prescription filling, sanitary engineering and the handling of much of the important details of the work of the hospitals. Some excellent men have been developed in the service, and the wonder is that they continue to remain in their positions for the pittance which they receive."

In the reorganization of the army, proper recognition ought to be given to pharmacists, and to that end we should use our earnest endeavors.

AN AMENDMENT TO ADD MESCAL AND MESCAL BUTTONS TO THE PROSCRIBED DRUGS OF HARRISON LAW.

Senator Thompson, of Kansas, has introduced a bill (S. 3526) amending the Harrison law by adding mescal and mescal buttons to the list of proscribed drugs. It seems to us that such an addition is unnecessary, at least at this time. The scale could easily be regulated by states, as the use of the drug is very limited and confined to a few states, and therein restricted.

SUBSTITUTES FOR ABSORBENT COTTON.

Recent consular reports mention several more or less successful cheap substitutes for absorbent cotton that have been introduced since the European war began. One of these now on sale in Berlin is known as "lignin" and is made of pine cellulose. It is said to absorb blood better than cotton, but cannot compete with the latter as a dressing for wounds. It is, however, pronounced satisfactory for use as a second dressing. A cellulose wadding, made by a secret process from chemical wood pulp, is now offered as a dressing for wounds in Sweden. It comes in very thin sheets, resembling tissue paper. The use of sterilized spagnum moss for the same purpose appears to have been generalized by the exigencies arising from the war.

CONTEMPLATED DISCONTINUANCE OF THE FAHRENHEIT THERMOMETER SCALE.

House bill 528 provides that the Fahrenheit scale be no longer used in government publications, or at least, discontinued after a designated period of time. Aside from custom there seems to be no particular reason why the Fahrenheit scale should be continued; the Centigrade scale is quite generally employed, except for weather indications. The same objections do not obtain that apparently exist relative to a general adoption of the metric system in the various measures of common use.

If you favor the bill, write Congressman Albert Johnson to that effect, or, if you object to the discontinuance, give him your reasons for retaining two thermometer scales when the simpler one will answer every purpose.

THE OMNIBUS REVENUE BILL CONTEMPLATES REPEAL OF STAMP TAX.

The omnibus revenue bill is said to contemplate the repeal of the "stamp tax" of the emergency "war" revenue act of October 22, 1914, which has been extended to expire at the end of the present year.

CORNELL'S CHEMICAL LABORATORY DESTROYED BY FIRE.

Morse Hall, home of the Chemistry Department at Cornell University, was practically destroyed by fire, February 13, entailing a loss of more than $400,000, wiping out research work, the value of which can hardly be estimated.

PERSONAL AND NEWS ITEMS.

Dr. H. H. Rusby, of the New York College of Pharmacy, recently delivered an address on "Drug Cultivation" before the Board of Managers of the New York Botanical Garden.

Dr. Reid Hunt, of Harvard University Medical School, has been elected president of the American Society for Pharmacology and Experimental Therapeutics.

John Humphrey, editor of the Pharmaceutical Journal (Great Britain), has been compelled, on account of impaired health, to resign his duties. Mr. Humphrey assumed sub-editorial duties in 1892, afterwards becoming editor, and during these years helped on the progressive movement in British pharmacy and accumulated during that time a splendid record of which he may well be proud.

Howard B. French, president of the Philadelphia College of Pharmacy, was elected president of the Philadelphia Chamber of Commerce. In recognition of faithful service for thirty years as chairman of the Executive Committee of the Paint Manufacturers' Club, this association presented Mr. French with a handsome loving cup at the annual meeting of this organization.

H. K. Mulford, president of H. K. Mulford Company, was elected one of the vice-presidents of the Philadelphia Chamber of Commerce.

The Deutsch-Amerikanische Apotheker Zeitung of January is an interesting Hermann Hager number. Editor Hugo Kantrowitz was in Philadelphia in attendance at the February Philadelphia A. Ph. A. Branch meeting, and participated in the presentation of an enlarged photograph of Hermann Hager to the Philadelphia College of Pharmacy.

Professor Otto Raubenheimer addressed the Philadelphia Branch, A. Ph. A., on the subject of the A. Ph. A. Recipe Book, February 8. He also made the presentation address in donating an enlarged photograph of Hermann Hager to the Philadelphia College of Pharmacy, on behalf of the German Apothecaries' Society of New York.

Charles Sumner Koon was recently elected secretary of the Michigan Board of Pharmacy. He is also president of Muskegon (his home city) Retail Druggists' Association.

Dr. E. L. Newcomb, head of the Department of Pharmaceutical Botany and Pharmacology, University of Minnesota, has been elected editor of the Northwestern Druggist. Dr. Newcomb is also secretary of the Minnesota Pharmaceutical Association.

After twenty-five years of valuable service to pharmacy, Merck's Report ceases to be a subscription journal. The first number has already been issued under the new order, and, while different in general make-up, it will continue to be a welcome visitor. The spirit of the publishers is expressed in these words, "The field is so well covered by the pharmaceutical press that it seems unnecessary to do what other journals are doing so well."

Riker-Hageman merger with the United Drug Company has been authorized. The capitalization is $20,000,000, and it is intimated that the Dow and Owl Drug Company "chain" of stores will be added before very long.

The Farbwerke-Hoechst Company will contest the legality of a ruling made by the Commission of Internal Revenue applying the provisions of the Harrison Act to non-habit-forming drugs, such as novocaine, orthoform, anæsthesin, and holocaine.

OBITUARY

J. P. BRASHEAR.

J. P. Brashear, veteran retail druggist of Fort Worth, Texas, and member of the American Pharmaceutical Association, died January 18 from injuries received on the night previous, when he was knocked down by an automobile.

Mr. Brashear came to Fort Worth about thirty years ago, first engaging as clerk, and later established the business of which he was owner at the time of his death. Fort Worth druggists closed their stores and attended the funeral in a body, evidencing the high regard in which he was held as frater and citizen.

The deceased is survived by his widow and several children. He was deeply interested in association work, and always contended that membership in the various drug organizations was not only beneficial, but he considered such support a duty.

E. G. E.

BOOK REVIEWS AND NOTICES

Supplement to the British Pharmaceutical Codex, 1911, including additions, alterations, and corrections. Published by direction of the Council of the Pharmaceutical Society of Great Britain, London. The Pharmaceutical Press, 17 Bloomsbury Square, W. C., 1915. Price, one shilling net.

This pamphlet of 75 8vo pages contains particulars of important additions and alterations which have become necessary since the work was published, and includes new monographs, galenical formulæ, a list of substances with proprietary names and their chemical equivalents, a list of alterations in the text of the British Pharmaceutical Codex, 1911, necessitated by the publication of the British Pharmacopœia, 1914, a list of British Pharmaceutical Codex, 1911, Corrigenda, and an index of nine 3-column pages, containing upward of 1300 references, and indicating the varied nature and comprehensiveness of the material discussed in the pamphlet under review.

The list of substances, with proprietary trade names and their chemical equivalents, embodies an attempt to develop and systematize a series of short, non-proprietary names by the adoption, so far as possible, of the following rules:

Alkaloids and other basic substances to have names ending in "*-ine*."

Local anæsthetics, if basic in nature, to have names ending in "*-caine.*"

Antipyretics to have names ending in "*-in.*"

Hypnotics to have names ending in "*-al.*"

Antiseptics, for external use, to have names ending in "*-form.*"

On the basis of this proposed system a number of non-proprietary names have been coined for synthetic chemicals of a proprietary nature. Unfortunately many of these names appear to contain but a remote suggestion to the chemical name or composition of the article and bear practically no resemblance to the advertised proprietary name by which the article is known or used. The coined non-proprietary name at best will find but limited use, and there may be some reasonable doubt as to the propriety of adding to the existing confusion by coining additional names.

If manufacture could be induced to follow some reasonable system as the basis for new compounds, much might be accomplished in the way of developing a more rational nomenclature for new remedies of a synthetic nature.

M. I. W.

SAW PALMETTO, A PHYTOCHEMICAL STUDY OF THE FRUIT OF SABAL SERRULATA.

A thesis under the above title was submitted by Charles August Mann, instructor in chemical engineering at the University of Wisconsin, for the degree of Doctor of Philosophy, and has been issued as a bulletin of the University from the Course in Pharmacy of that institution. The author takes up the synonymy, natural history, and chemistry, and finally presents the bibliography, in which a number of the articles are concisely abstracted.

Quoting the author in his conclusions, the volatile oil so-called, *i.e.*, the mixture of ethyl esters of fatty acids, that is contained in alcoholic galenicals of the drug, is not a volatile oil in the generally accepted sense of the term. Neither is it a so-called ferment oil, resulting upon the hydrolysis of a glucoside, such as the oils of wintergreen, sweet birch, mustard, etc. It is formed by condensation of the free fatty acids, which are naturally contained in the berries, with ethyl alcohol, the preservative. Small amounts of ethyl esters are formed upon fermentation of a sugar, contained in the berries, to ethyl alcohol, if the fresh berries are allowed to stand when they undergo the necessary chemical changes. Considerably larger amounts, however, are formed when, as previously stated, the berries are preserved in alcohol.

Mere traces of volatile oil may be obtained from fresh berries, but this does not consist of ethyl esters, at least not to any appreciable extent, but of such of the free fatty acids of the berry as are volatile with water vapor. Owing to the presence of higher fatty acids such an oil is semi-solid. To this extent the true volatile oil of saw palmetto resembles that of the cocoanut, the only other oil of the palm family known at present. Whether a further analogy exists between these two volatile oils cannot be decided until much larger quantities of fresh berries can be distilled, so that sufficient volatile oil for a chemical investigation may be obtained.

Although the enzyme lipase has been demonstrated to exist in the berry, its presence is not necessary to explain the condensation of the ethyl alcohol with the free fatty acids to the corresponding ethyl esters. Indeed, the alcohol may even interfere with, if not completely inhibit, the enzyme action if sufficient alcohol could be used. Prolonged contact between the ethyl alcohol and the individual acids has shown that in each case the formation of esters can be accounted for without enzymes or other so-called catalytic agent.

Relative to an alkaloid, the author states that in order to ascertain whether the berries contain basic substances as such, a systematic search for alkaloids was made and repeated with several slight modifications. No decided tests, however, could be obtained with the general alkaloid reagents used.

He assumes that the basic substance or substances obtained by heating the berries with an aqueous solution of barium hydroxide were products of hydrolysis, probably of proteins. The slight indications for alkaloid obtained with some of the general alkaloidal reagents in the special search for alkaloids he likewise attributes to similar changes on a much smaller scale.

TOBACCO LEAVES.

The book under the above caption is published by the Collegiate Press, Menasha, Wis.; the author is W. A. Brennan, of the Department of Medical Sciences, The John Crerar Library. The interesting book is divided into chapters devoted to the history, botany, and chemistry of the tobacco plant, while other chapters are concerned with the cultivation of tobacco and its manufacture into the various forms in which it is consumed. The effects are also considered; in fact, there is little left unsaid regarding this important "drug," and the story is told throughout in an interesting and readable style.

Aside from the interest the book has for the reader, there is in it much valuable information for the dealer. The reference to this book, which came to the editor's desk, was prompted by both the latter thoughts, as many druggists are not only consumers of but dealers in cigars and tobacco.

PROCEEDINGS OF THE AMERICAN ASSOCIATION OF PHARMACEUTICAL CHEMISTS.

The 1915 proceedings of the American Association of Pharmaceutical Chemists have been published in a bound volume of about 300 pages. A valuable appendix presents the Federal narcotic law, rules and regulations, with Treasury decisions.

The book contains all the transactions of the Rochester convention, together with the many interesting and valuable reports presented during the 1915 meeting. The report of the Committee on Legislation includes a synopsis of recent legislation affecting the drug trade.

The officers are: B. L. Maltbie, Newark, N. J.; first vice-president, E. S. Holt, Cedar Rapids, Iowa; second vice-president, J. W. Haynie, Columbus, Ohio; secretary-treasurer, C. H. Searle, Chicago, Ill.

SOCIETIES AND COLLEGES

NATIONAL ASSOCIATION OF MANUFACTURERS OF MEDICINAL PRODUCTS.

The fifth annual meeting of the National Association of Manufacturers of Medicinal Products was held in the Waldorf-Astoria of New York City, February 3 and 4.

President H. C. Lovis, in his address, commented on the general improvement of the business. Aside from the influence of the European war, he contended that there was a steady, healthy, and substantial growth of the industries. He spoke for encouragement of botanical drug culture; endorsed the aims and provisions of the so-called Hill bill for protection of American manufacturers of dyestuffs, and pointed out the need for an American merchant marine.

President Lovis renewed his former recommendations that the association work for the adoption of a uniform narcotic law, for resale price protective measures, and opposed any changes in the National Food and Drugs Act.

Secretary Charles M. Woodruff presented a lengthy and interesting report. In this he raised the question as to whether the decision of the United States Supreme Court, in holding the Shirley amendment to the Food and Drugs Act constitutional, sanctioned the Board of Food and Drugs Inspection in attempting to direct what statements may be made and what opinions expressed respecting drugs known not to be inert and having generally recognized therapeutic properties.

He opposed amendments to the Harrison Law, and contended for definite measures that would admit medicinal preparations containing poisons in therapeutic doses to the mails. Mr. Woodruff opposed formula disclosure measures.

The report of the Committee on Legislation included a commentary and summary of laws affecting the drug trade, and submitted a series of recommendations embodying the views of the Association on important legislation.

The Association denounced efforts to renounce legislation similar to that proposed in the Paige Patent Law Revision Bill. The Association was favorable to provisions which would by proper and strict regulation preserve medicinal drugs from destruction by the authorities and thus becoming economic waste.

Representatives of various allied associations were present and were given recognition. Members of this association who had been in attendance at the conventions of other related associations reported as delegates.

Among the addresses delivered before this convention was one by Dr. J. H. Beal, on behalf of the American Pharmaceutical Association, and is printed in this number of the Journal.

Dr. Thomas H. Norton, special agent of the Bureau of Foreign and Domestic Commerce, delivered an interesting address on this country's foreign trade expansion and on the growing coal-tar chemical industry in the United States.

A banquet at the Waldorf-Astoria on the evening of February 4 concluded the annual meeting, and this was the only entertainment specially provided for the convention.

The following were elected officers and members of the Executive Committee: President, Charles J. Lynn, of Eli Lilly & Co., Indianapolis, Ind., succeeding Dr. Henry C. Lovis, of Seabury & Johnson, New York; vice-president, R. C. Stofer, of the Norwich Pharmacal Company, Norwich, N. Y., succeeding Josiah K. Lilly, of Eli Lilly & Co., Indianapolis, Ind.; treasurer, Franklin Black, of Charles Pfizer & Co., New York, re-elected; secretary, Charles M. Woodruff, of Parke, Davis & Co., Detroit, Mich., re-elected. Wilfred J. Woodruff will continue to serve as assistant secretary.

Executive Committee: Dr. Alfred R. L. Dohme, of Sharp & Dohme, Baltimore, Md.; B. L. Murray, of Merck & Co., New York, and the president, treasurer, and secretary in *ex-officio* capacity.

DRUG TRADE SECTION, NEW YORK BOARD OF TRADE.

A report presented by the Legislative Committee of the Drug Trade Section of the New York Board of Trade and Transportation at the latest monthly meeting of that body, held February 2, has brought to light the fact that considerable progress has already been made by conferences of medical, pharmaceutical, legislative, judicial, and civic reform interests of this city and state in the direction of drafting a new model uniform narcotic measure for adoption in all the states which will conform in all respects to national legislation on this subject.

Thos. F. Main called the attention of the section's members to the so-called Dill Bill, known as House of Representatives Bill 150, introduced into Congress by Representative Dill, of Oklahoma, which, under the guise of establishing a standard for weights and measures for agricultural products, provides that the director of standards of the United States Department of Commerce shall have control over all weights and measures in this country. Considerable opposition to this measure was voiced by various members of the section, and the matter was referred to the Committee on Tares as well as to the Committee on Legislation.

The new officers are: Chairman, Frank L. McCartney, of Sharp & Dohme; vice chairman, J. Edward Young, Jr., of Thurston & Braidich; treasurer, William A. Hamann, of Roessler & Hasslacher Chemical Company; secretary, William F. McConnell. To represent Drug Trade Section as director in New York Board of Trade and Transportation, Irving McKesson, of McKesson & Robbins.

Executive Committee: Howell Foster, of Schieffelin & Co.; Frederick E. Watermeyer, of Fritzsche Brothers; John T. Barry, of D. D. Williamson & Co.; Charles C. Bruen, of Bruen, Ritchey & Co.; Turner F. Currens, of Norwich Pharmacal Company.

PENNSYLVANIA PHARMACEUTICAL ASSOCIATION ACTIVITY.

The Committee on Publicity of the Pennsylvania Pharmaceutical Association, consisting of Professor Charles H. LaWall, Edgar F. Heffner, and Charles F. Kramer, is doing effective work, indicated by results. This committee sends out items of news relating to the drug trade and in which the public is interested, for publication in newspapers. One of the most recent items related the advanced cost of chemicals. The articles were printed in full by many papers, while a few published abstracts. Such endeavor brings the public in touch with the druggists, benefits the latter, and gives information to the former.

WEDGEWOOD CLUB, OF BALTIMORE.

The Wedgewood Club, of Baltimore, held a social session at the Hotel Joyce on the evening of January 27, which attracted a large attendance. John B. Thomas, of the Thomas & Thompson Drug Company, presided, and the company was edified with addresses by Thomas Lyons, an advertising man, on "Evolution"; by Henry P. Hynson, of Hynson, Westcott & Co., on "Ella Wheeler Wilcox"; by James E. Hancock, of John F. Hancock & Co., on "Revolution," and by R. E. Lee Williamson, of the Calvert Drug Company, on "Evolution and Revolution in Its Effect Upon Poetry."

SILVER ANNIVERSARY OF THE GERMAN PHARMACEUTICAL SOCIETY.

The twenty-fifth anniversary of the founding of the German Pharmaceutical Society was celebrated recently at the pharmaceutical institute of the University of Berlin. The meeting was presided over by Professor H. Thoms, and representatives of the educational, sanitary, patent, and military branches of the government were present to extend congratulations, as were also delegates from chemical and pharmaceutical societies.

Addresses were made by the presiding officer and by Professor Emil Fischer, after which Professor Wellstaetter, the newly-appointed successor to Professor Baeyer at the University of Munich, gave the festival lecture on "Anthocyan."

NATIONAL ASSOCIATION OF DRUG CLERKS.

The Executive Committee of the National Association of Drug Clerks, at its January meeting, held in Chicago, decided to hold the 1916 convention of the association on Thursday, Friday, and Saturday, June 1, 2, and 3, at the Hotel Sherman, in Chicago. The association will coöperate at this time with other national organizations in holding a three-day drug exhibit which will be open to the public.

BOSTON ASSOCIATION OF RETAIL DRUGGISTS.

The annual meeting and dinner of the Boston Association of Retail Druggists, held January 12, was attended by about one hundred members. Among the speakers of the evening were James F. Finneran and Frank F. Ernest; the former spoke of legislation and the latter on propaganda work.

Appropriate resolutions were adopted on the death of S. A. D. Sheppard. Michael J. Gallahue, of South Boston, was elected to membership. Mr. Waterhouse was re-elected president, and other officers were elected as follows: John J. Tobin, of South Boston, first vice-president; W. H. Pierce, of Boston, second vice-president; Leon A. Thompson, of Boston, third vice-president; Charles H. Davis, of Dorchester, secretary; Lyman W. Griffin, of Boston, treasurer.

AMERICAN DRUGGISTS' SYNDICATE.

The annual meeting of the American Druggists' Syndicate was held in Madison Square Garden, New York City, January 17.

Secretary Charles H. Goddard, in his report, tabulated the growth of membership and financial assets of the association, which showed that in ten years the organization had increased its membership from 1000 to 24,500 and assets from $30,000 to $3,850,000.

The retiring president is Dr. William C. Anderson, whose report constituted one of the interesting and important features of the session.

The newly-elected officers are: Permanent president, Charles H. Goddard; vice-presidents, W. C. Anderson, H. W. Merritt, E. W. Stucky, and G. H. Cherrington; secretary, A. L. Bailey; treasurer, G. W. Luft; directors, E. L. Weston, G. H. Cherrington, G. W. Hackenberger, W. G. Frailey, and A. L. Bailey.

OFFICERS RHODE ISLAND PHARMACEUTICAL ASSOCIATION.

The officers elected at the annual meeting of Rhode Island Pharmaceutical Association, held in Providence, January 12, are: President, Nicholas F. Reiner; vice-president, Edwin D. Robbins; secretary, Earl O. Swindell; treasurer, Earl H. Mason; Executive Committee, Alfred Johnson, Jr., Edward T. Colton, and Michael H. Corrigan, of Providence.

MINNESOTA PHARMACEUTICAL ASSOCIATION.

The Minnesota Pharmaceutical Association held its annual convention in the West Hotel, Minneapolis, February 8 to 10.

N. A. R. D. Secretary T. H. Potts was the guest of the association and delivered an address on "National and State Legislation." The Northwestern branch of the American Pharmaceutical Association met jointly with the state association at several sessions.

PHILADELPHIA DRUG EXCHANGE.

The fifty-fifth annual meeting of the Philadelphia Drug Exchange was held January 25 and brought together a large number of the members.

The officers of 1915 were re-elected to their respective positions, namely: President, John Fergusson; vice-president, Harry B. French; secretary, Joseph W. England; treasurer, Anthony M. Hance; directors, Charles E. Hires, A. Robinson McIlvaine, Dr. Adolph W. Pfromm, Adolph G. Rosengarten, Clayton F. Shoemaker, Richard M. Shoemaker, and Walter V. Smith.

The annual report of the Board of Directors, read by its author, Clayton F. Shoemaker, reviewed the country's business and legislation of the year, particularly of the drug trade, in a most interesting and instructive manner.

On January 27 the annual banquet took place at the Ritz-Carlton Hotel, when more than 150 members were present; among the latter, visitors from New York, Baltimore, Trenton, etc. The entertainment features were in charge of Chairman Walter V. Smith and his associates of the entertainment committee, Clayton F. Shoemaker and Adam Pfromm. The diners joined in popular airs led by professional singers.

President John Fergusson presided as toastmaster; the speakers of the evening were E. G. Eberle, Leroy Oldham, of Baltimore; former Congressman Reuben O. Moon, Rev. Robert Johnston, rector of the Church of the Saviour, and Councilman Joseph P. Gaffney.

The address of the first speaker reviewed briefly the history of the American Pharmaceutical Association, and he spoke for cooperation in upbuilding pharmacy. He contended that if the attention of men of means were directed they would as willingly endow institutions for teaching pharmacy and give support to associations as they are in furthering other worthy undertakings. The speaker closed with a pledge of coöperation on the part of the Journal, and expressed the hope that friends among the members of the Exchange would help him to make the Journal serve in a broader way, if possible, the aims and policies of the Association and the interests of pharmacy in general.

Mr. Oldham brought greetings from the druggists of Baltimore, and, after extending these, delighted the audience with incidents showing the characteristics of the old negro "mammy" and "uncle," many of which had occurred in his boyhood days.

Former Congressman Reuben O. Moon, a member of the Philadelphia Bar, pointed out the dangers of the policy of preparedness. He showed how, after centuries spent in perfecting the world's civilization, it had been proved to be but a veneer that had been swept aside by the nations of Europe in their return to barbarism. The great defect in that civilization had been the worship of effectiveness. He showed that the great danger of military preparedness was in being swept over the line through a knowledge of its existence.

In strong contrast to the conservative views of Mr. Moon were those of the next speaker, the Rev. Robert Johnston. He explained that he had intended to speak in a lighter vein, but that he could not, after hearing the address of the preceding speaker.

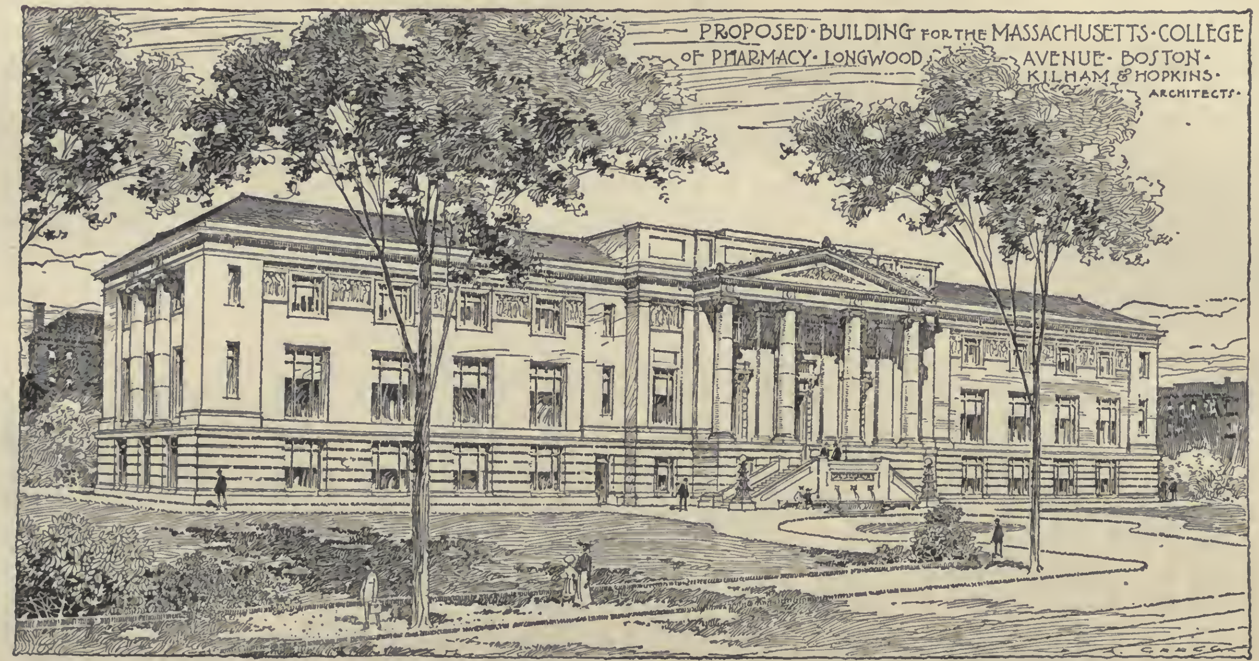
"I don't believe in the danger of militarism," he declared, "but I do believe in the effect upon others of being prepared on general principles to maintain our dignity and our position."

In close keeping with the subjects discussed by Messrs. Moon and Johnston was the description of the recent trip of the Liberty Bell from Philadelphia to San Francisco, given by Councilman Joseph P. Gaffney, a member of the committee which accompanied this revered relic from this city. Stereopticon views showed how the patriotism of the entire country had been stirred by the sight of the old bell that had proclaimed the freedom of the American people so many years ago.

A NEW BUILDING PLANNED FOR THE MASSACHUSETTS COLLEGE OF PHARMACY.

The Massachusetts College of Pharmacy is actively planning for a new building to be erected on the fine site purchased a few years ago at the corner of Brookline and Longwood Avenues, Boston, very near the new buildings of the Harvard Medical School and in the great centre of medical education and practice that is being developed in this part of Boston. In the immediate neighborhood are the Brigham Hospitals, the Children's Hospital, Harvard Dental School, Tufts Medical and Dental Schools, the Psychopathic Hospital, and the Huntington Cancer Hospital, the Carnegie Nutrition Laboratory, and many other institutions of a similar nature.

The building is to be of an impressive character that will add much, in the eyes of the general public, to the dignity of the profession of pharmacy. The first floor is to be at ground level, and will contain the chemistry and pharmacy laboratories, with apparatus rooms and instructors' rooms, a large study-room for men students, and also the heating plant and janitor's workshop. The middle or main floor will contain two lecture-rooms, each with about three hundred seats; the Trustees' room, general offices, library, women's study-room and rooms for the professors. The upper floor will


PROPOSED · BUILDING FOR THE MASSACHUSETTS · COLLEGE
OF PHARMACY · LONGWOOD AVENUE · BOSTON ·
KILHAM & HOPKINS ·
ARCHITECTS ·

PROPOSED BUILDING FOR MASSACHUSETTS COLLEGE OF PHARMACY.

contain the materia medica laboratory with its stock-room, the bacteriological laboratory, recitation rooms, alumni room, and various other rooms of varying size and importance. In the central portion of the upper floor a large assembly room is to be included, with a capacity of 500, a stage at one end, and store-rooms adjoining. This room may be used for conventions, receptions, and other social purposes, and for the commencement exercises of the college.

This college is in possession of an endowment amounting to $240,000, but no part of the principal of this endowment is to be used. The new building, with its equipment, exclusive of its site, will cost in the neighborhood of $200,000, of which a part is to be obtained by the sale of the present building and its site, and a part is being raised by a campaign now under way. It may be necessary to put a mortgage on the building for a part of its cost, but it is hoped that this will be small in amount.

UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY.

The University of Illinois has purchased for its School of Pharmacy a new site located at the corner of Wood and Flournoy Streets, Chicago, immediately opposite the new Cook County Hospital, and affording a frontage of 201 feet on Wood Street and 128 feet on Flournoy Street. The purchase includes two substantial brick buildings erected for the Chicago Homœopathic Medical College and Hospital some years ago. These buildings will be put into shape at once, and it is expected that the school will remove to its new quarters immediately following the close of the present school year. The new location is in the great medical centre of Chicago and only a short distance from the Medical and Dental Colleges of the University, which will bring the three Chicago departments of the University into much closer relations. In the immediate neighborhood are also the Rush Medical College, the Presbyterian Hospital, the Chicago Dental College, and several other similar institutions.

It is planned to use the larger building for the offices, library, museum, lecture halls and microscopical laboratory, and several smaller laboratories. This building is four stories in height and contains an amphitheatre with a seating capacity of 300, as well as two smaller lecture-rooms and several laboratories. The hospital building, three stories in height, will be refitted for the pharmaceutical and chemical laboratories exclusively.

The school has heretofore occupied rented quarters. Its present location at Michigan Avenue and Twelfth Street, where it has the four upper floors of a large brick building, has been occupied by it since 1904. From 1885 to 1904 the school was located on State Street, near Polk Street. The alumni and friends of the school have been engaged for many years in an effort to bring about the purchase of property where the school could be suitably and permanently located, and at last their efforts have brought fruit and their hopes are about to be realized. The new location will make possible several improvements in the courses and equipment which the faculty of the school have had in mind for some time. The President and Trustees of the University have given assurance that means will be provided to put the school in first-class shape in every respect.

UNIVERSITY OF CALIFORNIA.

The Bureau of Correspondence Instruction of the University of California Extension Division has just completed the arrangements for giving a correspondence course in Home Sanitation and the Prevention of Disease, which is open to the general public. The course is arranged by Dr. Albert Schneider, of the College of Pharmacy of the University of California. It is believed that this course is of special value and interest to pharmacists.

SCHOOL OF PHARMACY, MEDICAL COLLEGE OF VIRGINIA.

Mr. Charles O. Lee, who for two years was in charge of the work in Botany and Materia Medica in the above-named school, has accepted a position in the Pharmacy Department of Purdue University. Mr. Philip F. Fackenthall, who for some years was assistant to Professor Kraemer, of Philadelphia College of Pharmacy, has been elected to fill the place made vacant by Mr. Lee's resignation.

The pharmacists of Virginia are working vigorously for the passage of a prerequisite law by the Virginia Legislature, which is now in session.

The state association has already voted unanimously for this progressive measure, and the prospect for its passage seems excellent.

NEW YORK COLLEGE OF PHARMACY.

Professor Homer St. Clair Pace delivered a lecture on the subject of "Business Training for Pharmacists" at the January meeting of the New York College of Pharmacy. Professor Pace in his address said that capital and effort were most important for successful business; however, that most business failures were not due to lack of effort but of sound business judgment.

Some time of the session was devoted to the reading of obituaries of W. M. Massey, Brent Good, and Anton Vorisek. The first was read by Mr. Costello, the second by T. F. Main, and the last by C. P. Wimmer. Comments on the life and work of the deceased were made by Irving McKesson, T. J. McMahan, T. F. Main, C. A. Mayo, H. V. Arny.

IOWA COLLEGE OF PHARMACY.

Under the auspices of the Department of Pharmacy of the University of Iowa, and with the encouragement of the Iowa Pharmaceutical Association, a short course for pharmacists has been inaugurated. The first session was held January 18 and 19, and an intensely interesting program was provided. The subjects were presented by men well known for their success in business life and proficiency in teaching pharmacy. We hope to have several of these addresses in this and succeeding issues of the Journal of the American Pharmaceutical Association.

This endeavor is to be commended, for there is sufficient publicity attached for acquainting the public with the importance of pharmacy.

THE PHARMACIST AND THE LAW

THE STEPHENS BILL.

House Bill No. 9671, referred to in an editorial of this issue, reads as follows: "Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That in any contract for the sale of articles of commerce to any dealer, wholesale or retail, by any grower, producer, manufacturer, or owner thereof, under trade-mark or special brand, hereinafter referred to as the 'vendor,' it shall be lawful for such vendor, whenever the contract constitutes a transaction of commerce among the several states, or with foreign nations, or in any territory of the United States, or in the District of Columbia, or between any such territory and another territory, or between any such territory or territories and any states or the District of Columbia, or with a foreign nation or nations, or between the District of Columbia and any state or states or a foreign nation or nations, to prescribe the uniform prices and manners of settlement at which the different qualities and quantities of each article covered by such contract may be resold; *Provided*, That the following conditions are complied with:

"(*a*) Such vendor shall not have any monopoly or control of the market for articles belonging to the same general class of merchandise as such article or articles of commerce as shall be covered by such contract of sale; nor shall such vendor be a party to any agreement, combination, or understanding with any competitor in the production, manufacture, or sale of any merchandise in the same general class in regard to the price at which the same shall be sold either to dealers at wholesale or retail or to the public.

"(*b*) Such vendor shall file at the office of the Federal Trade Commission a statement setting forth the trade-mark or special brand owned or claimed by such vendor in respect of such article or articles of commerce to be covered by such contract of sale, and also, from time to time, as the same may be adopted or modified, a schedule setting forth the uniform price of sale thereof to dealers at wholesale, and the uniform price of sale thereof to dealers at retail from whatever source acquired, and the uniform price of sale thereof to the public, and upon filing such statement such vendor shall pay to the Federal Trade Commission a registration fee of $10. Prices set forth in such schedule and made in any contract pursuant to the provisions of this act shall be uniform to all dealers in like circumstances, differing only as to grade, quality, or quantity of such articles sold, the point of delivery and the manner of settlement, all of which differences shall be set forth in such schedule; and there shall be no discrimination in favor of any vendee by the allowance of a discount, rebate, or commission for any cause, or by grant of any special concession, or by any other device whatsoever.

" (*c*) Such contracts for the sale of such article or articles of commerce may provide for seasonal disposal sales, twice yearly at appropriate times, by dealers at retail, during which periods, duly set forth in such statement or in such schedule of prices as shall be filed by such vendor, such dealers at retail may sell such article or articles of commerce for a price other than the uniform price as set forth in the schedule provided in the preceding paragraph (*b*); *Provided,* That such article or articles of commerce shall have first been offered to the vendor, by such dealer at retail, by written offer, at the price paid for the same by such dealer, and that such vendor, not less than thirty days prior to the date set forth for the next seasonal disposal sale, after reasonable opportunity to inspect such article or articles, shall have refused or neglected to accept such offer.

" (*d*) Any article of commerce or any carton, package, or other receptacle inclosing an article or articles of commerce covered by such contract and in the possession of a dealer may be sold for a price other than the uniform price for resale by such dealer for such quality and quantity as set forth in the schedule provided in the preceding paragraph (*b*): First, if such dealer shall cease to do business and the sale is made in the course of winding up the business of such dealer, or if such dealer shall have become bankrupt, or a receiver of the business of such dealer shall have been appointed; *Provided,* That such article or articles of commerce shall have first been offered to the vendor thereof by such dealer or the legal representative of such dealer by written offer at the price paid for the same by such dealer, and that such vendor, after reasonable opportunity to inspect such article or articles, shall have refused or neglected to accept such offer; or, second, if such article of commerce or contents of such carton, package, or other receptacle shall have become damaged, deteriorated, or soiled; *Provided,* That such damaged, deteriorated, or soiled article shall have first been offered to the vendor by such dealer by written offer at the price paid for the same by such dealer, or at the option of such vendor, in exchange for similar articles not damaged, deteriorated, or soiled, and that such vendor, after reasonable opportunity to inspect such article or articles, shall have refused or neglected to accept such offer, and that such damaged, deteriorated, or soiled article shall thereafter only be offered for sale by such dealer with prominent notice to the purchaser that such article is damaged, deteriorated, or soiled and that the price thereof is reduced because of such damage.

" Sec. 2. That the provisions of this act shall not apply in cases of sales of such article or articles of commerce to the United States, or in cases of sales of such articles to any state or public library, or to any society or institution incorporated or established solely for religious, philosophical, educational, medical, scientific, or literary purposes, made in good faith for use thereof by such society or institution."

ADDITIONS TO BRITISH CONTRABAND LIST.

Cork and cork dust, acetones, and raw or finished materials capable of use in their preparation and compounds of phosphorus have been added to the British contraband list.

THE FOOD AND DRUGS ACT.

Representative Barkley, of Kentucky, has introduced a bill providing for absolute prohibition of the manufacture, sale, or transportation in interstate commerce of misbranded articles. This bill also proposes to transfer the question of determining standards to the U. S. Bureau of Standards.

Section 6 of the act is involved in the proposed measure.

STANDING OF DRUGS IN INDEX OF UNITED STATES PHARMACOPŒIA.

In the opinion of the Bureau of Chemistry, an article sold under a name recognized in the index, but not appearing in the text, of the United States Pharmacopœia is a drug within the meaning of section 6 of the Federal food and drugs act. Such an article is adulterated under the provisions of the act if it differs from the standard of strength, quality or purity as determined by tests laid down in the United States Pharmacopœia official at the time of investigation, unless its own standard of strength, quality, or purity is plainly stated upon the bottle or box or other container.

QUANTITY STATEMENTS.

A decision amending regulation 29, covering the marking of quantity of package forms, strikes out paragraphs (*d*) and (*e*) and substitutes therefor the following:

"(*d*) If the quantity of the contents be stated by weight or measure, it shall be marked in terms of the largest unit contained in the package, except that, in the case of an article with respect to which there exists a definite trade custom for marking the quantity of the article in terms of fractional parts of larger units, it may be so marked in accordance with the custom. Common fractions shall be reduced to their lowest terms; decimal fractions shall be preceded by zero and shall be carried out to not more than two places.

"(*e*) Statements of weight shall be in terms of avoirdupois pounds and ounces; statements of liquid measure shall be in terms of the United States gallon of 231 cubic inches and its customary subdivision, *i.e.*, in gallons, quarts, pints or fluidounces, and shall express the volume of the liquid at 68° F. (20° C.); and statements of dry measure shall be in terms of the United States standard bushel of 2150.42 cubic inches and its customary subdivisions, *i.e.*, in bushels, pecks, quarts, or pints; *Provided*, That statements of quantity may be in terms of metric weight or measure. Statements of metric weight should be in terms of kilogrammes or grammes. Statements of metric measure should be in terms of litres or centilitres. Other terms of metric weight or measure may be used if it appears that a definite trade custom exists for marking articles with such other terms and the articles are marked in accordance with the custom."

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the Journal unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

DUERR, GEORGE J.
From 121 Wyckoff Ave., Brooklyn, N. Y.
To 678 Seneca Ave., Brooklyn, N. Y.

STROUP, A. S.
From Monte Vista, Colo.
To 205 N. Main St., Pueblo, Colo.

DOLIBER, F. N.
From 221 Columbus Ave., Boston, Mass.
To 261 Franklin St., Boston, Mass.

GIDLEY, W. F.
From care of Purdue University, Oak St., W. Lafayette, Ind.
To care of Purdue University, 220 Sylvia St., Lafayette, Ind.

KALUSOWSKI, H. E.
From 808 First St., N. W. Washington, D. C.
To 808 Eye St., N. W. Washington, D. C.

MILLER, I. B.
From Main St., Cape Girardeau, Mo.
To 5-7 Main St., Cape Girardeau, Mo.

LYMAN, R. A.
From 1641 S. 21st St., Lincoln, Neb.
To 1949 S. 21st St., Lincoln, Neb.

BURKETT, K. S.
From 1620 Antrim St., Pittsburgh Pa.
To 838 Ridge Ave., Pittsburgh, Pa.

GRANT, J. H.
From Jacksboro, Tenn.
To Jellico, Tenn.

GREEN, BENJ.
From 12 Market Square, Portsmouth, N. H.
To 1 Market Square, Portsmouth, N. H.

ROOT, N. F.
From 63 Main St., Brattleboro, Vt.
To 105 Main St., Brattleboro, Vt.

LANGE, L. A.
From 486 Market St., Milwaukee, Wis.
To care of Yahr and Lange Drug Co., Milwaukee, Wis.

RUPERT, J. F.
From H. S. U. S. Naval Hospital, Las Animas, Colo.
To U. S. S. Prometheus, Mare Island, Cal.

MALTBIE, B. L.
From 350 High St., Newark, N. J.
To Altamonte Springs, Fla.
HERETH, F. S.
From 23 Vine St., Brooklyn, N. Y.
To Richmond, Cal.
WILSON, L. S.
From Box 2016 Globe, Ariz.
To Box 1001 Douglas, Ariz.
PILLSBURY, A. L.
From Box 1702, Denver, Colo.
To Box 749, Denver, Colo.
SHOWALTER, R. N.
From 3338 N. Illinois St., Indianapolis, Ind.
To 3869 No. Delaware, Indianapolis, Ind.
ELLIOT, CHAS. E.
From Texas City, Texas.
To Sgt. 1st C. H. C 23rd Infantry, U. S. A. Galveston, Texas.
HARMS, HERMAN
From 312 Boyd Park Bldg., Salt Lake City, Utah.
To State Capitol, Salt Lake City, Utah.

WAR DEPARTMENT

List of changes of stations covering period ending January 31, 1916, in the cases of Sergeants First Class and Sergeants.

SERGEANTS FIRST CLASS.

Ephraim Stevenson, from Ambulance Company No. 1, to Ft. Canby.

Emmett C. Kauffman, from Field Hospital Company No. 1, to the Hawaiian Department, on the March transport.

William D. Voorhis, from Ft. Sheridan, to the Southern Department, for assignment.

Charles N. Abel, from Ft. Oglethorpe, to the Southern Department, for assignment.

Bernhard Anderson, from Field Hospital Company No. 2, to Benicia Arsenal.

Otto H. Hornung, from Benicia Arsenal, to the Hawaiian Department, on the March transport.

John B. Anderson, from Ft. Sam Houston, to the Philippines Department, on the March transport.

John O. Brown, from Ft. Mott, to the Hawaiian Department, on the March transport.

SERGEANTS.

Adolph Gerstenzang, from Vancouver Barracks, to Ft. Hancock.

George Bruley, from Ft. Brady, to Ft. Riley.

Walter S. McWhorter, from Jefferson Barracks, to Army and Navy General Hospital.

Charles Brown, from Ft. Oglethorpe, to Ft. Logan H. Roots.

Robert H. Blanche, from Ft. Logan H. Roots, to Ft. Oglethorpe.

John M. Bayless, from the Hawaiian Department, to the United States for retirement.

Max W. Minser, from the Philippines Department, to Ft. McDowell, Cal.

Alexander Hepburn, from the Philippines Department, to Ft. Jay.

John F. Stever, from Ft. Hamilton, to the cable boat *Joseph Henry*.

Brent, A. Lemert, from Militia Duty of the State of N. C., to Ft. Wadsworth.

Pharmacist E. B. Scott. Granted 7 days' leave of absence from December 23, 1915. December 21, 1915.

Pharmacist L. C. Spangler. Granted 4 days' leave of absence, to be taken before December 31, 1915. December 20, 1915.

Assistant Physicist D. H. Tuck. Directed to proceed to points outside of the city of Pittsburgh to make studies of illumination in industrial plants. December 29, 1915.

APPOINTMENT.

Thomas C. Armstrong appointed a Pharmacist of the third class in the Public Health Service. January 22, 1916.

THE NEW HOME OF THE JOURNAL

THE PHILADELPHIA BOURSE.

Our readers are aware that the publication office of the Journal of the American Pharmaceutical Association has been established, since the beginning of the year, in the rooms of the Philadelphia Drug Exchange; and believing that the members of the Association will be interested in knowing somewhat about the new location and environment of the Journal Office, the following sketch and views are presented.

The Philadelphia Bourse occupies a large and imposing building in the heart of the

OFFICE OF THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

commercial section of this city, extending from Fourth to Fifth Street and between Market and Chestnut Streets. In this building is housed not only the general exchange of the Bourse itself, but also many other industrial exchanges and organizations, among these the Philadelphia Drug Exchange.

The Philadelphia Drug Exchange is one of the oldest and largest of its kind in the country. It was organized January 22, 1861, for protecting and advancing the interests of the wholesale and manufacturing drug trade and allied interests. Men, widely known in the drug and chemical world, have been chosen as its officers, many of whom have been actively identified with the American Pharmaceutical Association. John Fergusson holds the office of president, at the present time, with J. W. England as secretary and Anthony M. Hance, treasurer. The membership is not confined to citizens of Philadelphia; New York, Pittsburgh, St. Louis and other cities being represented, also.

The Drug Exchange occupies two rooms on the second floor of the Bourse Building, and here the Editor of the Journal has found comfortable quarters, looked down upon by eminent men of the past and present, whose portraits adorn the walls of the office.

Within a few blocks of the Bourse is to be found the Lippincott establishment, where the Journal of the American Pharmaceutical Association is printed. J. B. Lippincott Company are widely known as printers of pharmaceutical literature, and the statement may be of interest that this firm has published the United States Dispensatory, which is now in its nineteenth edition, since its beginning. A number of the revisions of the United States Pharmacopœia bear the firm's imprint, as do also many of the books found in the pharmacist's library. Both the United States Pharmacopœia IX and National Formulary IV await their completion in this printing plant.

The name of Lippincott became associated with this publishing house in 1836, through Joshua B. Lippincott. The house, however, dates back to 1792, and was established by Jacob Johnston. The president of the company is J. Bertram Lippincott; vice-president, Joseph Wharton Lippincott; general manager, Alfred C. Balch; secretary, Horace S. Ridings, and treasurer, Ellis W. Bacon.

J. B. LIPPINCOTT COMPANY PUBLISHING HOUSE.

The home of this company is located on the east side of Washington Square, and is generally conceded to be one of the best equipped publishing houses of the country.

The Committee on Publication of the American Pharmaceutical Association consists of the following: J. W. England, chairman, and E. Fullerton Cook, Philadelphia; F. J. Wulling, Minneapolis; George M. Beringer, Camden, N. J.; Harry B. Mason, Detroit; with *ex-officio* officers, William B. Day, Chicago; H. M. Whelpley, St. Louis; Julius A. Koch, Pittsburgh, and E. G. Eberle, Philadelphia.

The out-of-town members of the American Pharmaceutical Association are cordially invited to visit the Editor in his new home, should they chance to be passing through the city of Philadelphia, where they will receive a most cordial welcome.

JOURNAL ANNOUNCEMENTS

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, $4.00; Canada, $4.35; foreign countries, $4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to Journal of the American Pharmaceutical Association, 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the Journal can be regularly mailed only to bona-fide paid subscribers.

Requests for Back and Missing Numbers: Requests for back and missing numbers should be sent to the Editor. Claims will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from date of issue. Notice of change of address should give old and new address.

Contributions: The Journal accepts no responsibility for the opinion of its contributors. Contributions should be sent to the Editor; use only one side of the sheet for writing, and double-space the lines. Articles are accepted for publication on condition that they are contributed solely to this Journal; and "all papers presented to the Association and its Branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by consent of the Committee on Publication." (By-Laws, Chapter X, Article 11.)

Reprints: Authors may obtain reprints of the J. B. Lippincott Company, Philadelphia, Pa., at the prices attached to the proof sent them, provided the order is received before the type has been distributed. The prices are also given on this page.

Advertisements: Communications relating to advertising should be sent to the Editor. Forms close on the first of each month, and copy should be in by the fifteenth of the month preceding date of issue, to receive proof. Date of issue—the fifteenth of the month. Advertising rates sent on request.

Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the Journal. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

An Application Blank will be found on last page of this issue.

Cost of Reprints: Reprints will be furnished at the following prices:

	No cover	With cover
100 copies, 4 pages ..	$2.50	$4.50
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50 copies, 8 pages ..	2.75	4.50
100 copies, 8 pages ..	3.50	5.00
200 copies, 8 pages ..	4.50	6.50
50 copies, 12 pages ..	3.75	4.75
100 copies, 12 pages ..	4.75	5.75
200 copies, 12 pages ..	5.75	6.75
100 copies, 16 pages ..	6.75	7.75
200 copies, 16 pages ..	7.50	8.50

Orders may be sent to J. B. Lippincott Company or Journal of the American Pharmaceutical Association, 253 Bourse Building, Philadelphia, Pa.

BADGES AND BARS.

Members who desire the official badges and bars for the meetings they may have attended are invited to correspond with the General Secretary. He is able to furnish from his stock the bars for the following meetings:

Asheville, 1894; Denver, 1895; Montreal, 1896; Lake Minnetonka, 1897; Put-in-Bay, 1899; St. Louis, 1901; Atlantic City, 1905; Hot Springs, 1908; Richmond, 1910; Denver, 1912; Nashville, 1913; Detroit, 1914; San Francisco, 1915.

The badge sells for $2.00, and the bars at 75 cents each, beginning with 1899, those of prior meetings at 60 cents. Bars for meetings not mentioned may be made to order.

Address, W. B. Day, General Secretary, 74 East Twelfth Street, Chicago.

JULIUS ARNOLD KOCH

Reporter on the Progress of Pharmacy
of American Pharmaceutical Association.

JULIUS A. KOCH

JOURNAL OF THE
AMERICAN
PHARMACEUTICAL
ASSOCIATION

VOL. V MARCH, 1916 NO. 3

JULIUS ARNOLD KOCH.

Julius Arnold Koch, the present Reporter on the Progress of Pharmacy of the American Pharmaceutical Association, has occasion this month to celebrate the twenty-fifth anniversary of his appointment as Dean of the Pittsburgh College of Pharmacy. He graduated from the latter institution in 1884, where he also took a special course in chemistry under Prof. Hugo Blanck. From 1880 to 1891 he was associated with his father in the drug business at Pittsburgh. In 1891 Professor Koch accepted the Chair of Pharmacy and the deanship of his Alma Mater. In 1896, under Adolph v. Baeyer, in Munich, and again, in 1897, under Gatterman and Victor Meyer, at Heidelberg, he pursued special work in organic chemistry and accomplished the synthesis of aromatic aldehydes by the Friedel-Crafts reaction, as also a second synthesis (Ber., xxx, 1622, and xxxi, 1149). In 1900 he accepted the Chair of Organic Chemistry, and in 1903 that of Chemistry and Director of the Chemical Laboratories, having meanwhile (1901) been appointed Professor of Chemistry and Director of the Chemical Laboratories of the Department of Medicine, University of Pittsburgh.

Doctor Koch has been very active in pharmaceutical educational matters, having been for eight years chairman of the Executive Committee of the American Conference of Pharmaceutical Faculties, in which position his efforts have been largely directed toward the standardization of pharmaceutical degrees. He has been a member of the United States Pharmacopœial Conventions of 1890, 1900, and 1910, and at the latter meeting was chosen a member of the United States Pharmacopœial Revision Committee. In the American Pharmaceutical Association he has filled a number of important offices, and numerous other pharmaceutical and chemical associations, both European and American, list him as a member.

In 1897 he received the degree of Doctor of Pharmacy, in 1905 that of Doctor of Philosophy, and in 1907 the degree of Doctor of Science.

J. H. WURDACK.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

A MAN WITHOUT A COUNTRY.

"A MAN without a country" is strangely typical of the American pharmacist, considering pharmacy in its broader, more comprehensive sense, and this unfortunate condition of the collectors, importers, manufacturers, distributers, and dispensers of drugs and medicines, in these United States, renders them quite as helpless and as inefficient, in personal potentiality, as would be "The Wandering Jew" in considerable multitude.

It may be justly advised that the commercial divisions of pharmacy are well and efficiently organized, that the educational and legal features are also properly associated, and that these national bodies are influential within themselves and for themselves. The phases: the *phases* of pharmacy are, then, organized and are in a position to be represented, just as the Diplomatic Service, the Army, the Navy, Internal Affairs, Postal Service, Agriculture, Commerce and Labor are organized and in a position to be represented. But what would be the result, what would be the loss or what the confusion if these departments were not correlated and did not make up the great executive part of the Government? Is it possible that any sensible person will say that the phases of pharmacy, as represented by our great national bodies, should not be correlated and attached to a catholic central body with a history, with prestige; with an association that has all the peculiar and liberal qualities that make it especially well fitted to become the greater holding body—"The Country"—of American pharmacists; remembering that a person who has anything of importance to do with drugs and medicines *is* a pharmacist?

At present the practical and clearly destined way of bringing about a quick and acceptable correlation of the phases of pharmacy is through the National Drug Trade Conference. Broaden its field of operations, not too greatly at first, and make *it a part of the American Pharmaceutical* and let the American Pharmaceutical cease to be a part of the Conference, and at once the great scheme of uniting *all* pharmacy has been accomplished. An appeal that enforces responsibilities is made to the members of the Drug Trade Conference and to the several organizations they represent for a serious, a generous, and a decisive consideration of this most important subject. HENRY P. HYNSON.

THE DRUG TRADE AFTER THE WAR.

IF there were no other reasons than the different views of financiers and statesmen on "business after the war," then these alone would deter us from attempting to express an opinion on this much-discussed subject.

Mr. Ray Morris, in the Atlantic Monthly for March, presents an analytical summary, expressive of the sober thoughts of two representative groups of prominent merchants and brokers—one sees golden prosperity; the United States as the source of supply for Europe; also, South America being a creditor, that the commerce of that section will come here.—The other concludes that our mushroom prosperity, one hundred percent profits on war contracts, is unfitting us and raising wages to a point which will make effective competition impossible with rivals who will be compelled to secure outlets for their products of cheaper labor. South America being a raw-material producer, like the United States, must buy where she sells.

Perhaps the best that we may hope for is that both are right and wrong; surely, if one or the other is right, we are either fortunate or ill-fated. The conclusions seem to be quite as reliable as the prognostications based on the conspiracy of the ground-hog with the sun on the second day of February.

Manufacturers are realizing that the question of wages is becoming a serious one; also, that the influence of reduced profits needs explanation, whereas large dividends are received without apologies. It is generally accepted that all prices of drugs and chemicals are not at present based on supply and demand, and some day there must be an adjustment. All this will require careful study if we are to be prepared for business conditions when peace has been restored.

There is no matter of greater importance than the establishment of a tariff commission, without political attachments and the members chosen on account of their efficiency and courage to do right.

Chief among the reasons that contribute to lower prices of European manufacture are the coöperation of government with the industries and the universities; the low freight rates for export goods; encouragement of industrial combinations, and low wages.

Progress in contemplated research work is evident: only recently a Bureau of Industrial Research was established at the University of the State of Washington, which will attempt to coördinate the research activities already undertaken by the university, with a view to the utilization of the resources of that state.

While state and government should provide means for research work because thereby the national community is benefited, the industries themselves could well afford to encourage schools by provisional endowments and thus stimulate an interest which will prove a source of profit. The investigations and contributions of Hermann Frasch can be cited as just one example of what pharmacists may do in promoting the industries. The encouragement of schools and earnest associations may be considered in the light of good investments instead of mere donations.

Australia has recently provided a fund of two and one-half million dollars for the establishment of a national laboratory for the application of scientific research to Australian industries. The aim of the national laboratory is the coördination of existing institutions—commonwealth laboratory, universities, agricultural colleges, technical and mining schools, and ordinary schools.

It was not until about a year ago that Great Britain provided for the endowment of research. This took the form of a grant amounting in the aggregate to a hundred thousand pounds sterling contributed for experimental and laboratory work in connection with the scheme for establishing the coal-tar dye industry. Later an Advisory Council on Industrial Research was provided with thirty thousand pounds for the purpose of devising plans and assigning investigations to laboratories, etc.

A possible British protective tariff is foreshadowed by the Advisory Committee on Commercial Intelligence in a report which reads, "that where the national supply of certain manufactured articles, which are of vital importance to the national safety, or are essential to other industries, has fallen into the hands of manufacturers ready to undertake the manufacture of such articles in this country, the manufacturers should be afforded sufficient tariff protection to enable them to maintain such production after the war."

We may summarize that if the American industries concerned with the drug trade are to be materially developed there must be coöperation all along the line, from government to people. The latter must be willing to encourage American manufacturers, while the other divisions in the coöperative chain must studiously work out a plan of action and put it into effect. The means employed for exploitation and selling by foreign countries have been subjects of the magazines and press.

A thought that might be here included relates to, who would be entitled to the results of research work made possible by the people or the industries? The spirit that prompts such endowments is altruistic, hence the results should be made available, under proper conditions, for the public advantage.

The American Pharmaceutical Association has from its very inception largely contributed to the knowledge of pharmaceutical and chemical manufacturers, and the latter have helped to make the transactions of the annual meetings of the Association mutually profitable. Industrial research is but the expansion of one idea that has been fostered by the Association. The JOURNAL and the YEAR BOOK are valuable mediums for communicating and conserving knowledge relating to pharmaceutical and chemical activities and the progress being made therein. Many of the industrial enterprises, somewhat removed from pharmacy, have been made possible, or rather the products manufactured by them had their origin as medicinal agents. Such developments are just as probable hereafter, and manufacturers should not be unmindful of their inheritance. A deeper interest and substantial encouragement of the American Pharmaceutical Association and the JOURNAL will energize their endeavors preparatory for a period that, more than ever before, will require the coöperation of the coördinated forces of the drug trade. There are some who think there is no possibility for improving pharmacy, and that is largely the reason for slow progress or seeming failure. The future is always based on what we *will* it to be: history demonstrates that. E. G. E.

THE VALUE OF HISTORICAL PHARMACY.

BIOGRAPHIES of great men, in whatever field of activity, are most instructive and useful as helps and guides, and serve as incentives to others. The present state of things is the consequence of the past, therefore a source of information anent the good we enjoy or the disadvantages we contend with. "History teaches philosophy by example." The two subjects are so closely related that for this article we will not make a distinction between history and biography.

All of us have been inspired by the lives of others, therefore no argument is needed for convincing any one of the powers of biography and history. We may not attribute a stimulus to this source because the influence seems to come from within ourselves. Our culture is resultant upon the study of one subject with another, one radiating light into the other, and becomes part of ourselves. No one will deny that the lives of pharmacists are activated by their tutors, preceptors, and patrons any more than that the acts of our statesmen are expressions of popular demands.

The introduction of manual training into our public schools was responsive to the necessity for developing the industries, helpful to the young men and women in their chosen vocational occupations. There is another auxiliary side to secondary education, and that is through a knowledge of the men similarly engaged and their activities, whether successful or unproductive. The contemplation of the lives of men inspires faith in times of discouragement. They have accomplished, and so can I; it also tends to the creation of higher ideals and a resolve to succeed, though others have failed. In other words, the study of biography has both inspirational and sustaining power.

The greatest difficulty presented in making history a subject for encouragement of the student lies in speaking only of the achievements of men and not of their struggles and failures. Both are essential from an educational point of view: one is a sequence of the other. The youth finds encouragement when he succeeds where another is less efficient, but is discouraged rather than enthused when he reads of work still beyond his reach, the result of trials he himself is now experiencing.

Biography is a culture medium which permits young people to enjoy the company of those who have served their profession, interests them in the knowledge they have made available, enables them to understand that which has been accepted as truth, and enkindles aspiration for higher ideals.

A pharmaceutical education is incomplete unless it comprehends a general familiarity with the important diverse fields of human thought and also is linked with the history of the profession and those who pursued it. Without the vision that enables him to view the past, with only the concentrated gaze on the present-day conditions, the young pharmacist lacks perspective, is out of sympathy with the spirit of the history of progress and unappreciative of the common interests of related activities and those whom he serves. He cannot realize the more serious duties involved in his work, nor does he understand the current of advance that sweeps beyond the sphere of proximate things. An analysis is not complete if the preliminary determinations are not considered with the final results; so also the purposes of pharmacy are better understood if we have a general knowledge of its development.

Those who attend the annual meetings of the American Pharmaceutical Association go away with higher ideals for pharmacy, with an inspiration and a determination to be more useful to their profession. True, like resolutions, these promptings nearly always lose their power, but nevertheless there is inspiration from others. The important thing is for each of us to keep faith in himself and the profession, increase the knowledge thereof, work usefully and prove grateful to those that worked therein before, beneficially to those that are to come after.

"History is neither more nor less than biography on a large scale."—"The best thing which we derive from history is the enthusiasm that it raises in us."

E. G. E.

OUR VISION IS NOT MEASURED BY WHAT OTHERS HAVE SEEN.

WE reproduce an editorial from the Alumni Journal of the Columbia University College of Pharmacy under the caption of "A Word About the A. Ph. A."

> The remark that the American Pharmaceutical Association does not appeal to the average retail pharmacist is heard much too often not to be taken seriously. One of the several reasons advanced is that "it is composed too largely of 'high-brows,' college professors, etc."
>
> Only recently we heard a member make this selfsame statement. The speaker was one who had only a short time since retired from the presidency of a state pharmaceutical association upon the completion of an exceptionally successful administrative year. The association had hit, as many thought and said, a slump, the finances were in poor condition, and interest was lagging.
>
> Quite a few of the speaker's friends criticised the organization, not at random and iconoclastically, but usually constructively, and, when the gentleman was chosen president, flocked to his support and assisted him in performing wonders in infusing new life and interest into the Association.
>
> No doubt there are others, real workers, not shirkers, active in divers pharmaceutical bodies, who hold similar views of the American Pharmaceutical Association. If this be true, it bodes the American Pharmaceutical Association no good, and something should be done to disillusion the doubters and to induce them to become active workers in the ranks of the pioneer pharmaceutical association of our country.

Perhaps the foregoing editorial should have a reply, even though the oft-repeated charge is quoted, that the American Pharmaceutical Association is composed too largely of "high-brows," college professors, etc., and is part of the first paragraph.

The Association speaks for and welcomes accessions to the membership; the Treasurer each year sends out a series of persuasive letters to those who are not sufficiently interested in their membership. Every one is invited to participate in the activities of the Association, and those that come invariably feel well repaid for their time and expenses they have incurred. There is no section that does not offer information for all and presents ample opportunities for discussions of subjects that apply to the activities of the druggist.

The Association invites criticism that is constructive: he who has a valuable scheme for reform should not wait for others to make the beginning. It is an easy matter to offer a suggestion: to activate it requires persistent work: quibbling and wrangling over things cause dissension, but do not make for progress.

It should be understood that no exception is taken to the editorial, because such statements every one has heard. The desire, however, is to convert the thought into some useful accomplishment. The term "high-brow" must be ignored entirely, for it is not specific; but, as a matter of fact, is it desirable to exclude the teacher? Surely not. Rather they should be encouraged to greater and deeper interest, and the larger membership should offer them problems that are nearer and more advantageous to the success and the promotion of the drug business.—Lend a hand.

Every one will admit that the Association is not perfect, no, and that is simply saying that the individual members are not. There is no organization that is not subject to some kind of criticism, unless there is no life in it.

Unity and cohesion are essential conditions for association work. The American Pharmaceutical Association is engaged in harmonizing many separate interests, while at the same time it is endeavoring to carry on constructive work. The complexity of the drug business in itself offers many problems; the educational status is not the same in all states or even within respective localities; there is wanting the close coöperation between physicians and pharmacists that should obtain. And so we might enumerate the many diverse situations which engender a spirit of criticism from one or more contending factions. This is the crux: both coördination and coöperation are necessary, and with it all an altruistic spirit and a desire to be really helpful in upbuilding the Association.

Means must be sought to hold the members within the ranks and bring outsiders into the Association. Let us not forget our duty in promoting harmony, remembering that the Association must reconcile conflicting pharmaceutical interests and harmonize those of pharmacy, on the one hand, and the medical profession, the public in general, the government and the state, on the other; also, that we are prone to forget the potential work the Association has done and is doing, but possessed of keen sight for deficiencies, that men now and in the past have sacrificed much so that many might be benefited.

If the desire is ardent and sincere for a better, stronger, and more efficient Association, it will become so, provided we all work together. Criticism has an enlivening value in correcting errors and stimulating energy, but there should also obtain the constructive faculty, promoting the legitimate aim of criticism; namely, to direct attention to the excellent.

E. G. E.

PROPOSED REORGANIZATION OF HOSPITAL CORPS.

IN the proposed reorganization of the Hospital Corps of the United States Army, this division becomes part of the Medical Corps. The enlisted men of the Hospital Corps are transferred to the corresponding grades of the Medical Corps established by the act which provides for reorganization.

The titles given are "Master Hospital Sergeant" and "Hospital Sergeant," etc. Chairman Hilton, of the Committee on the Status of Pharmacists in the Government Service, writes that, while the titles provided are not what we may desire, the provisions are otherwise in accord with what we have been asking for. He also urges that the Association use every means at command to push the bill through Congress and thereby help the members of the Hospital Corps.

The total number of enlisted men in the Medical Corps under the contemplated act will be approximately equal to five percent of the total enlisted strength of the army, and in time of war the Secretary of War is authorized to increase the number. The master hospital sergeants and hospital sergeants represent each one-tenth of the Medical Corps. Master hospital sergeants are appointed by the Secretary of War, following an examination which includes pharmacy, and they must have served for not less than twelve months as hospital sergeants or sergeants.

The recognition of pharmacists in the Government Service speaks for the valuation that the public places on the services of pharmacy, and our duty is plain for proper recognition of those engaged in the service and also that their qualifications will reflect credit. American pharmacy is deeply interested; let us see to it that all the recognition pharmacists are entitled to is accorded.

E. G. E.

RIGHTING AN OMISSION.

IT is to be regretted that, in the sketch of Professor Diehl's life published in the February number of the JOURNAL, a very important part of his activities for pharmacy has been inadvertently overlooked; namely, his work in behalf of the National Formulary, with which he has been preëminently connected since its inception. In the preparation of the first edition he was active as a member of the committee from the Kentucky Pharmaceutical Association. Of the succeeding editions, including the one now in process of revision, he has been the dominant factor, having been chairman of the Committee of Revision from the beginning of the first revision to the present time.

JULIUS A. KOCH.

SECTION ON HISTORICAL PHARMACY, AMERICAN PHARMACEUTICAL ASSOCIATION

HELD AT SAN FRANCISCO, CAL., AUGUST 12, 1915, 2 O'CLOCK P.M.

The Historical Section of the American Pharmaceutical Association convened in the Gold Room of the Bellevue Hotel, in San Francisco, August 12, 1915, at 2 o'clock P.M., E. G. Eberle acting as chairman and Dr. Albert Schneider acting as secretary.

Mr. Eberle: Neither the chairman nor the secretary of this section is present. I have agreed to act as chairman, and, if there is no objection, I would ask Dr. Schneider to act as secretary. The first order of business is the chairman's address.

Fellow Members of the Historical Section:

It is with deep regret that I am unable to be with you at this meeting, and I earnestly hope that our session will be a success. My address will be brief. In looking over the addresses of our chairmen for past years I find that pretty nearly everything has been recommended, but little has been done to put any of these recommendations into effect. We resolve, then dissolve. Therefore I will make but two recommendations, which I earnestly ask you not only to approve but to take action that will produce results.

Recommendation I: That the Historical Section recommend and urge the earliest possible action of the American Pharmaceutical Association towards securing and maintaining a conveniently located storage place for the collection and preservation of the historical documents, relics, etc., now nominally in the care of the Association. This should be in charge of the Librarian, or other officer, who can give proper care to our historical collection.

Recommendation II: That members of the Association, especially the elder members, be requested to contribute more liberally to this section on topics pertaining to the history of American pharmacy, personal or relating to education, industrial and scientific pharmacy, associations, etc.

This recommendation speaks for itself. This section is directly responsible for the collection of historical material for future work on the history of American pharmacy. There are few members who *cannot* contribute some valuable data, but very few do it. I earnestly hope that more interest will be taken in this matter and that members will not require continual begging by future chairmen for contributions.

As to the first recommendation: It may surprise many of you to learn that the unreplaceable, valuable historical documents and relics in care of the Association are scattered all over the country in the devoted care of some member of the Association, who preserves them at his own expense because there is no place to which to send them. The Association is sadly at fault in this matter. Even if stored in packing cases at an official place in charge of some responsible officer it would be better than the present absolute lack of proper care. If the Historical Section is to continue its work, if historical contributions are to be solicited, the Association *must* provide a safe central place for the storage and preservation of its collection of historical material; and at an early date, too, if it would not lose more of the treasures historical that are now going to libraries, colleges, etc., because the owner does not trust the American Pharmaceutical Association as their guardian. Furthermore, our material at present is of little value to any member or student, so widely is it scattered. I doubt if anybody really knows what we have; I don't, and I don't even know where much of it is, even after inquiries. A start might be made by requesting all members having historical material in their personal charge to furnish the Librarian with lists of what they have. I earnestly ask the section to take this matter up at once and that members personally make it their business to see that some action be taken by the Association and something actual be started, at least. Don't resolve and dissolve; ionize and get action. In days to come the Association will have its own home building, we hope; this matter will doubtless come before the meeting. But I warn you against letting rosy views of the future relax your energies in securing action now on this question of providing a place for our historical collection. The home may come; proper care and storage of our collection must come.

I am sorry to say, in closing, that illness and overwork have prevented me from doing many things I had planned for our section. There is plenty to do as a private, however, and I expect to do my share in future. The work of the Historical Section is very dear to me and I am proud of its record. May it continue to grow in interest and importance!

With greetings to all and hearty wishes for a record-breaking session, I present this as my address as chairman of this section.

FREDERICK T. GORDON.

Mr. Eberle: The recommendation which refers to the storage of historical contributions has partially been taken care of by placing these in charge of the Editor of the JOURNAL, who becomes Historian, the conservator of historical contributions, and secretary and chairman doing the work of this section.

Recommendation No. 2 asks that the members be requested to contribute more liberally to the section. What is your pleasure with regard to the report of the Chairman? Is there any action you wish to take?

Dr. Weinstein: I move that the report be received and accepted.

(Motion seconded, put, and carried.)

Mr. Eberle: The next is the Historian's report.

HISTORIAN'S ADDRESS.

The life of every individual is characterized by his antecedents, his contemporaries, and those who will live hereafter. He draws lessons from the past, existing moral and social laws mark his character, in some degree he anticipates the future, and thus, while his progress and development largely depend upon his own efforts and energy, he follows precept and example. We may say of one individual he lives in the past; another is only concerned with the present; still another is in advance of the times, but, as a matter of fact, we are of those that have been, those that are and will be. We note this gradation in the world's activities: the burden-bearers of the Far East are represented by our modern methods of conveyance and we have displaced their simple tools by machinery.

History reveals, records, and foretells events. The value of history is not only in the lessons we draw from the lives of individuals or of nations, but largely in the profit we have from the experience of others. The less progressive people of other climes gradually adopt methods we have discarded. Even one section of the country reads the history of another; current events here are elsewhere ancient history.

What value has the history of pharmacy? We derive a general knowledge of progression and are enabled to convert our antecedents' attempts into accomplishments. As ambition marches over the bodies of the dead, so progress is made possible by learning that which others did not comprehend.

Our failures will be converted into successes or the futility of our attempts recognized and avoided. Just as one pharmacopœia is a more perfect guide than its predecessor, so our knowledge is built upon the experiences of others.

We seldom give such serious thoughts to the history of pharmacy, because the suggestions of the past are so closely linked by gradual progress. Our purpose is largely in the pleasure history of pharmacy gives us, of the acquaintance it establishes or renews with predecessors—to have some record, behold something that was transcribed by them, to be in possession of some memento or relic that belonged to them, stimulating a kindred pride. Even that is valuable for precept and example, and so this section is worthy of your support, encouragement, and development. And this brings me to " Bodemann's *ceterum censeo.*"

At the meeting in Detroit the Association endorsed the recommendation that Veteran Druggists' Associations be established by branches of the American Pharmaceutical Association, and one of the prerequisites to membership should be the writing of an autobiography. In this way the life records of many pharmacists would be preserved for future pharmaceutical generations. You all will remember the very interesting autobiography of J. Winchell Forbes, edited by Dr. J. H. Beal. Not all of us have such an eventful life, and Dr. Beal might not be willing to lend his facile pen for effective description, but we have at least a pharmacist's part, however humble that may be. No reports of activity in that direction have come to this section, except from the Chicago Veteran Druggists' Association. The writer speaks for such provision in every Branch.

The Historian should be curator of papers and donations to this section, and the office should be more or less permanent. Those who make contributions desire, of course, that these be permanently preserved and accessible.

I would ask your consideration of another recommendation, and that is, every applicant should be requested to send his or her photograph to the Editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION with the following essential notations on back: date of birth; degrees received, where and when; dates of business or professional history. It will readily be seen that this will not only offer information, but be helpful in compiling data for those who write the history of the Association.

E. G. EBERLE.

Mr. Eberle: Now, the first recommendation that I make has already been provided for. The other suggestion is this: when a member is elected to the Association, when he is informed officially of his election, that he then be requested to send a photograph of himself, or herself, as the case may be, and on the back of it make those few statements so that we have a record. You can readily see that this will be useful at some time or other.

The report is before you.

Mr. Nitardy: I move that the report be received.

(Motion seconded, put, and carried.)

Dr. Alpers: I am glad that this recommendation at the end, which is only in the form of a wish, has been made. I have been trying for years to bring about the same thing. It is probably the right thing that the Historian should undertake it. But I would go further. I would not only have the date of birth on the back of the photograph; I would devise a full set of questions regarding a man's life, his early education, his college life, the papers he has written, the offices he has held, and anything that might be of interest pharmaceutically. We cannot compel a man to sign it. We can compel a new candidate to make certain statements we need, but I do not think anybody would refuse such information, and it would be valuable.

I might say that anybody who has tried to write history—and I have tried to write up the history of this Association—will know what difficulty he meets in getting information of the simplest kind. You read there of a great man, of a man of prominence in a certain meeting who brought out something of importance. You try to get some information about him, and it is impossible to get any, or only with the greatest difficulty. Therefore I think we owe it to this Association that such a record should be kept, and even those who are members now should be invited to fill out the blanks and answer the questions.

I heartily endorse the recommendation.

Dr. Schneider: Some four years ago I had some correspondence with Mr. Hayes with the idea of getting out a " Who is Who in American Pharmacy." I think that it is a work that should be undertaken and would be right in line with these suggestions. So many of the younger generation in pharmacy read our contributions before the sections, but don't know who the authors are. If we had a record of that kind, these readers could have the desired information. The men who are acquainted with the contributors don't need it.

Mr. Eberle: Are there any further remarks? If not, I will put the motion.

(The motion was put and carried.)

Mr. Eberle: The Secretary is not here, and we have no report from him.

The next paper on the program is on the subject of " Pharmaceutical Happenings from 1810 to 1814," being additions to contribution presented in 1913 and 1914, by Professor Otto Raubenheimer, and the next paper is " Pharmaceutical Events a Century Ago," by the same author. These have not reached the Historian or the Chairman, but are somewhere on the way. They were sent too late, and we cannot do anything with them.

Dr. Alpers: Would it be out of order to move that these papers be received? They can be read by title, as the author is not here. They are valuable contributions to history. I move, if it is in order, that they be received as soon as they reach the Historian.

(Motion seconded, put, and carried.)

Mr. Eberle: The next paper is entitled " Some Contributions Pharmacy Has Made to Civilization," by Miss Zada Cooper. Miss Cooper is engaged in the Women's Section at this time and asks that her paper be read by title and referred. The contribution is quite a lengthy one and gives some very interesting recollections of prominent men in the history of the past who have also been concerned with pharmacy.

Dr. Alpers: I move that the paper be received.

(Motion seconded, put, and carried.)

Mr. Eberle: Next on the program is "A Brief History of the Work of the Indiana Board of Pharmacy." Mr. Rudder told me he would contribute such a paper, but I have not had word from him since that he has done so. So we cannot take any action on that paper.

The next is a paper, "A Memoir of John Criddle Wharton." This paper is not lengthy. It is four typewritten pages, and, if you desire, I will read it. The author of the paper is not here.

Dr. Alpers: I would say that, according to the resolution of the Council, a paper whose author is not present can only be read after the others who are present here have been disposed of. I have no objection to reading it, but I call attention to that resolution; they must be present personally or represented.

Mr. Eberle: The point is well taken, and we will pass that for the time being.

The next paper is " History of Pharmacy in Montana," by Charles E. Mollet. Professor Mollet is not here. Under the circumstances, this paper can be read by title and received.

Montana is a new state, and it is interesting to have this early history of pharmacy. Professor Mollet stated that he will contribute further papers. I suggest that this be referred in the usual course. What is your pleasure?

Dr. Weinstein: I move it be read by title.

(Motion seconded, put, and carried.)

Mr. Eberle: The next paper is one that has required much research library work. It refers to "Animal Drugs Used in Medicine During the Middle Ages in England and France." The paper is by George Gehring Marshall, and is in the hands of Dr. Alpers, who will present it.

Dr. Alpers: Dr. Gehring Marshall, one of the members of our Association, expected to be here, but on the day he was to start he was taken with appendicitis. He asked me to read this paper. I do so for the reason that I share the paper with him in so far as an instructor in a college can share a paper that a student prepares.

This paper is really a study. It is far too long to read, but is one of the most valuable contributions to the history of pharmacy. Mr. Marshall intends to continue this work, and together we expect to study the early materia medica of France, England, and other countries.

To show the value of work that has been done, Mr. Marshall purchased one book for which he paid $600. I call your attention only so you may know the deep interest he exhibited in this contribution. He purchased a great many other books for reference, and others were secured from various libraries, always with the aim of authenticity in mind, regardless of trouble and expense.

(Dr. Alpers gave a very interesting account of the contribution; however, as he will submit an abstract for publication in the JOURNAL, his remarks are here omitted.)

Dr. Alpers: I think this is one of the most valuable compilations that has ever been made upon this subject, and, while I could not say that it is absolutely exhaustive, I believe it contains more than was ever written before. I don't know whether it can be printed in full, but I think parts of it should be printed to show what the work is.

Mr. Nitardy: I should think it would be valuable to print that in full, and then have reprints of it that would be valuable to librarians.

Dr. Alpers: One copy of this is in the archives of the College of Pharmacy, to whom it was presented. I believe this is the only copy Mr. Marshall has, and, if I am not mistaken, he asked me to bring it back to him. If this is the only copy, I would ask the privilege of taking it back, and he will send it later to be incorporated in the papers of the Association.

Mr. Eberle: We have the fact before us that the paper was presented. I wonder if Dr. Alpers or Mr. Marshall could not present the paper in abstract of the more important points. The Association, I know, would appreciate it, if Dr. Alpers or Mr. Marshall would offer the paper in abstract.

Dr. Alpers: I can only say that I will do my best. I think it can be done. I know that parts of the paper are interesting, and the two of us together can present an abstract which will outline the paper.

Mr. Eberle: I would like to ask that the request be embodied in this resolution. Are there any further remarks? If not, I will put the question.

(The motion was put and carried.)

Mr. Eberle: Now, we have "Autobiographies of American Pharmacists," by Wilhelm Bodemann, but, Mr. Bodemann not being here, we will pass that for the time being.

The next is " The Dreiss Drug Store of San Antonio, Texas," accompanied by photographs. I asked Mr. Herman Dreiss to contribute this paper because this store is one of the oldest stores in San Antonio.

(The photographs were then exhibited to the audience.)

Mr. Eberle: I will ask that this paper be referred.

The next is "The Founders of the California College of Pharmacy," by Richard E. White. I will read this paper in abstract or present it.

Dr. Schneider: Mr. Chairman, I move that the paper take its usual course.

(Motion seconded, put, and carried.)

Mr. Eberle: Now, "Early Pharmacy on the Pacific Coast," by J. F. Llewellyn. Mr. Llewellyn is not here, and I will ask that this brief paper be read by title and take the usual course.

Dr. Schneider: I move that it take the usual course.

(Motion seconded, put, and carried.)

Mr. Eberle: We have a paper that was passed over a little while ago, "Historical Notes of Kansas Pharmaceutical Association," by Mr. J. S. Chism. The paper is quite lengthy and, if Mr. Chism can present it in abstract or give an outline of it, that might be acceptable.

(Mr. Chism then read portions of his paper.)

Mr. Eberle: You have heard the reading of the paper. What is your pleasure?

Dr. Schneider: I move it be received.

(Motion seconded, put, and carried.)

Mr. Eberle: The next we have is "Biographical Sketch of John Barnitz Bond." The sketch is short and I think it ought to be read. I will say that Dr. Bond died in Arizona at the home of his daughter, July 20, 1915.

Dr. Schneider: I move that the paper take the regular course.

(Motion seconded, put, and carried.)

Mr. Eberle: We now have a paper on "Opium, Its Alkaloids and Derivatives," by M. I. Wilbert, Washington, D. C. The suggestion has been made that this paper be read by title and take the usual course.

Dr. Schneider: I move it be read by title.

(Motion seconded, put, and carried.)

Mr. Eberle: We have another paper, "A Dramatic Moment in the History of the American Pharmaceutical Association." The paper is by Henry L. Taylor, secretary of the Syllabus Committee, and this sketch is accompanied by photographs which were made at the time the publication of the Syllabus was provided for. The photographs accompanying are not quite complete. Dr. Taylor will endeavor to secure all the photographs so we may have a complete record of the organization of the Syllabus.

Dr. Schneider: I move that the paper be referred to the custodian's care.

(Motion seconded, put, and carried.)

Mr. Eberle: We also have the "Memoir of John Criddle Wharton," by J. O. Burge. He was an honored citizen of Nashville, and to a certain extent nationally known. If it is your desire, I will read the paper.

Dr. Alpers: I move the paper be read.

(Motion seconded, put, and carried.)

Mr. Eberle: You have heard the reading of the paper. What is your pleasure?

Dr. Schneider: I move it take the regular course.

(Motion seconded, put, and carried.)

Mr. Eberle: So ordered. Now we have the paper of Wilhelm Bodemann, "Autobiographies of American Pharmacists." This brings out the point of the necessity or value of members of the Association writing autobiographies for future reference. Shall I read this paper or refer it? What is your pleasure? I will do as you like.

Dr. Alpers: I move you read it.

(Motion seconded, put, and carried.)

Mr. Eberle: You have heard the reading of the paper.

Mr. Scoville: I move it take the regular course.

(Motion seconded, put, and carried.)

Mr. Eberle: Now, then, that concludes the papers, excepting the illustrated lecture, and I want to call your attention to the contributions made to the Historical Section this year. There are only a few of them, because when I was informed that I was to act as chairman here I had so little time to get in contact with those who might contribute.

We have here, as indicated by the program, the Report of F. B. Lillie, delegate from Oklahoma to A. Ph. A., 1905 and 1906; A Short History of the Oklahoma Pharmaceutical Association from its Organization to the Beginning of Statehood; Copy of Original Pharmacy Law for the Territory of Oklahoma; Appendix of the Proceedings of Indian Territory and Oklahoma Pharmaceutical Association, together with By-laws Governing the Board of Pharmacy for the Indian Territory; Last Report of the Oklahoma Territorial Board of Pharmacy, which passed out of existence November 16, 1909. This is when Indian Territory became part of Oklahoma as a state.

These contributions I have, and I simply mention them so that the contributions may be known. I have a Biographical Sketch of Charles Theodore Mohr, by Eugene A. Smith. Mr. Mohr was the most noted botanist of the South, and was a member of this Association for a good many years. The sketch is written quite interestingly, and I simply offer that as a contribution for the Historical Section.

I also present again the Baylor Round-up for 1914–1915. This is the annual volume issued by Baylor University.

I have a photograph sent me by Mr. F. W. Meissner of Leo Eliel, deceased. I have also photographs of Charles E. Dohme and Dr. Fr. Hoffman, from Wiesbaden, Germany. This card was written from Wiesbaden, just before the 1902 meeting of the Association, when Dr. Hoffman expected to be present, but could not on account of impaired health. It is on a postcard and I will pass it around.

That is all excepting the illustrated lecture which we will have in the other room, and, unless some member here has something to present, we will nominate officers for the ensuing year, chairman and secretary.

Dr. Alpers: I would like to ask a question for information. I would like to know whether the Historian is ready to receive contributions of historical value outside of papers. It is a question that has been brought up here and was brought up in the General Session as to where the records should be kept. I understand they are scattered in different places. Some are kept by the Historian, and some by other members, some by the General Secretary, and so on. I had always hoped that a central office or home for the Association would be established where they could be deposited. I have in my possession a few things that I would like to deposit with the Association. They are not of great importance, but I would like to know whether there is any one to receive them.

Mr. Eberle: By the action taken the other day, Dr. Alpers, you will remember that the editor was made the Historian, simply to keep these contributions. And just as soon as I become permanently settled I will make arrangements to store these contributions. We have contributions in half a dozen or more different hands, and I will try to collect these and see that they are properly taken care of, but will not do so until I become permanently located.

Mr. Nitardy: I would like to ask if it has been the policy of the Association or the Historian of the Association to take a copy of all the photographs and other things that are used at these annual conventions and save them from year to year for future historic interest that they will have in a century from now.

Mr. Eberle: I don't think that has been done, but should be done.

Mr. Nitardy: I believe the printed matter used at the annual meetings, even such things as the banquet program and badges and programs of sections, and all those things, should be collected and stored away. They are of no interest next year, but they will be some day.

Another thing I would like to ask is if state associations have taken up the matter of appointing historians and saving photographs and things like that for their own organizations. If that has not been done, I think the American Pharmaceutical Association, especially the Historical Section, could render quite a service by endeavoring to interest state associations in work along that line. We have just started on that work in Colorado, and it is now a part of our Constitution and By-laws to have a Historian and official photographer, and this official photographer must take pictures of anything and everything he thinks is of interest, to furnish a copy of each picture and the plate to the Historian, or the film, as the case may be, with suitable notations of what they represent and why they were taken, and take a second copy of the picture and put it in a scrap-book to be on display at each convention. That is just one of the duties of the official photographer and historian.

Mr. Eberle: I think we could get in touch with the various state associations and secure as far as possible historical data of the associations and those who have taken active part. In order to do that we should have a place where we can get at these contributions, or they will be worth very little.

Mr. Nitardy: This proposition of taking pictures of every convention—how interesting it would be if we could have a scrap-book that would be on display at this convention that would show the official photographs or some other photographs that were taken at the conventions of the American Pharmaceutical Association!

Mr. Eberle: We have a great deal of such matter in the library at the present time, but it is simply in boxes. It is nailed up.

Mr. Nitardy: Photographs ought to be a duplicate proposition.

Mr. Eberle: Matter that comes in now and for the next year or two can be cared for, and then, when it becomes too bulky, the Association must store it.

Mr. Nitardy: I think a systematic effort should be made to take everything that can be of historical interest and preserve it.

Mr. Eberle: Does anybody desire to make a motion to that effect, or is this just informal discussion?

Mr. Nitardy: If it is best to make a motion to that effect in order to have it done, I am willing to make that motion. I don't know just under what rules and regulations the Historical Section will work. I just brought it up as a matter of information to myself.

Mr. Eberle: Heretofore we have simply received these contributions, and for the last four years the Secretary or the Chairman has taken charge of these contributions. Prior to that time they were in the hands of Dr. Kremers. From Dr. Kremers they were sent to the Lloyd Library, I believe.

Dr. Claus: I would like to ask if it is wise to bring those to every convention.

If so, we would have quite a time looking over them, and a still greater time for the Historian to bring them here.

Mr. Nitardy: No. I think a scrap-book of photographs of previous conventions would be a nice thing to have. I don't know whether that would be advisable; I just mention that as having been adopted in the state of Colorado, and we are trying it out.

Dr. Alpers: Have you any idea of the size of that scrap-book?

Mr. Nitardy: No, I have not.

Dr. Alpers: If we only had the photographs of the living members we would have 2500. That would make quite a book. Then come all the interesting situations and combinations which will make considerable of a photographic library.

Mr. Mayo: As a matter of fact, the Historical Section has in its possession photographs of all the recent meetings. Some of them are complete and some incomplete. There has been no systematic attempt, simply a matter of chance that we happen to have had them almost every year.

I move that the Historian be requested to obtain, wherever possible, group photographs of the members of the various associations, and to exhibit some of these photographs at each successive meeting. One of the most interesting exhibits we had was a collection of photographs arranged and shown at the meeting, either in St. Louis or some other place. We had an interesting collection. We can notify the members to bring photographs with them. I have myself a collection of photographs taken at Denver that might be interesting, especially in future years.

Dr. Claus: I second the motion.

Mr. Nitardy: Wouldn't it be advisable to include with the request to collect these photographs, to collect all the programs and other things and store them in the library? Of course, we don't want them brought to the meetings. As I understand, there has been no systematic effort made to collect that sort of material, and it is so easy to do it at the time of the meeting, but you can never do it after that.

Mr. Mayo: I accept the amendment in the present shape.

(The motion was put and carried.)

Mr. Eberle: Now, then, nominations are in order. We elect a Chairman and Secretary.

Mr. Mayo: I nominate Charles Holzhauer.

(Nomination seconded.)

Mr. Eberle: Are there any further nominations?

Dr. Claus: I move the nominations be considered closed.

(Motion seconded, put, and carried.)

Mr. Eberle: He being the only nominee, the Secretary can cast the ballot for the Section.

(The motion was carried.)

Mr. Eberle: Mr. Holzhauer is elected chairman.

Mr. Mayo: I nominate George Gehring Marshall, whose contribution to this meeting indicates that he is a man who would do good work as secretary of the section.

(Nomination seconded.)

Dr. Claus: I move the nominations close.

(Motion seconded, put, and carried.)

Mr. Marshall was then elected secretary.

After the illustrated lecture on "Voyages to the East Indies and Drug and Spice Trade of the Sixteenth and Seventeenth Centuries," by Professor A. W. Linton, the Section adjourned.

EAST INDIAN VOYAGES OF THE SIXTEENTH AND SEVENTEENTH CENTURIES IN THEIR RELATION TO DRUGS, SPICES AND DYESTUFFS.*

BY ARTHUR W. LINTON.

INTRODUCTION.

Since the earliest dawn of civilization certain products of southern Asia and of the islands near the Asiatic shores have been held in high esteem. First in importance among these was the group of pungent and aromatic substances used by men to flavor their meat and drink; but much in demand, also, were certain antiseptic balsams and other plant products employed in medicine, as well as odoriferous woods and resins associated with religious ceremonies, vegetable coloring matters useful as dyes, and still other rare materials prized as perfumes and toilet articles.

From the times when men first engaged in trade, these products have ranked as important articles of commerce. In the ages when transportation was so expensive that substances of moderate value could not be carried for long distances, these relatively expensive wares were taken to the farthest confines of the then known world. As civilization spread over western and northern Europe, the spices and drugs of Asia came into demand in these regions; and, although this demand has been subject to variations, it has been persisted in to the present day. The trade-routes underwent many changes in the course of the centuries, these changes being closely associated with the rise and fall of empires.

It is not the purpose of this paper to trace the channels of trade during ancient, classical and mediæval times. However, the description of Venetian commerce will serve to depict conditions as they were before the discovery of the sea route to Asia; while in the story of the Portuguese voyages will also be found many references to the older trade routes.

VENETIAN COMMERCE.

Among the Italian commercial cities which rose to greatness during the Middle Ages in consequence of the traffic in spices, drugs, and other products of the Orient, Venice stands the queen. Venice it was which triumphed over all others in the contest for the commercial supremacy of the Mediterranean. At the time of the discovery of the Cape route to India, Venice served as the connecting link between the eastern and western worlds.

Founded in the fifth century, by fugitives fleeing from the hordes of Attila the Hun, in her early history nothing more than a collection of fishing hamlets, Venice, even from the first, was dependent upon the sea for sustenance. As time went on, the fishermen engaged in coasting trade, their commodities at first probably fish and salt. Later they dealt also in iron and wood, and made somewhat longer voyages, gradually penetrating the Greek Archipelago and eastern Mediterranean.

At a very early date Venice had established important commercial relations with the Eastern Empire, but in 1082, as a reward for valuable aid furnished in time of peril, Venice was granted special trade privileges in Constantinople, which gave her great advantages over her rivals. Gradually acquiring territory upon the mainland and in the Archipelago, Venice grew to be a great power. At the breaking up of the Eastern Empire she was shrewd enough to claim as her share of the spoils territory of strategic importance from the commercial standpoint.

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* An address before the Section on Historical Pharmacy, San Francisco meeting.

The period of the Crusades brought increased prosperity to Venice. The warriors of the First Crusade had toiled the long and weary way overland to Palestine, but leaders of later Crusades often found it wise to embark their armies at Venice for a sea voyage. The Venetians were willing to furnish ships and supplies, not, however, simply because of their zeal to redeem the Holy Sepulchre. A stronger motive, probably, was the stream of gold which this transport service caused to flow into the coffers of her merchants. Indeed, the leaders of the Fourth Crusade, unable to pay in cash the price of their transportation, were constrained to earn their passage by serving under the banners of Venice in an expedition against Dalmatia, a dependency of Venice, at that time in insurrection. Thus the army enlisted to smite the Saracen frittered away its strength in combat with Christian princes.

The Crusades contributed to the prosperity of Venice, not only because they provided her with a profitable carrying trade for the time being, but because they greatly stimulated in Europe the demand for the product of the East. The warriors of the Cross learned from their Moslem foes the uses of many drugs, spices, and perfumes which up to that time had been little known in Europe. The records of the customs house at Acre, the city which for a century (1191–1291) constituted the principal bulwark of the Crusades in the Holy Land, furnishes us with valuable information in regard to the traffic of that period. We find that among the goods leaving the port of Acre, in the thirteenth century, were the following: rhubarb, musk, pepper, cinnamon, nutmegs, cloves, clove leaves and stalks, aloes-wood, camphor, frankincense, dates, nutgalls, and flax. (Tschirch, " Handbuch der Pharmacognosie," p. 699.)

A further source of information in regard to the commerce of the time is found in the writings of Marino Sanuto, a noble Venetian merchant who visited Palestine and Egypt several times, about the beginning of the fourteenth century. He had been mistreated by the Sultan of Egypt, and one of the principal purposes of his narrative, of which copies were sent to Pope John XXII and to the kings of France, Italy, and Sicily, was to incite these rulers to still another Crusade. Sanuto discusses the cultivation of sugar-cane upon Rhodes and other islands, and that of flax and dates in Egypt. He mentions saffron among the dutiable articles of Alexandria, and states that almonds were an article of import of that city. Among the costly drugs, he mentions cubeb, mace, nutmegs, nard, and cloves; among the less expensive, ginger, pepper, frankincense, and cinnamon. In a later work Sanuto mentions a present sent to the reigning Doge, which included benzoin, balsam, aloes-wood, and opium. (Tschirch, pp. 722–723.) Sanuto apparently hoped, by instigating a blockade of Alexandria by the fleets of the Christian nations, to wrest from the Sultan his monopoly of the transportation of eastern goods from the Red Sea to the Mediterranean.

Although Sanuto's plans were never carried into effect, Venice became more and more powerful, both politically and commercially. She assumed dominion over many of the Mediterranean islands and various rich districts upon the mainland. However, her supremacy was not won without a struggle. Genoa, by her triumph over Pisa in 1284, had become a powerful rival of Venice. Genoa was especially strong in the western Mediterranean, but she gained control also over important trading centres in the East, among these Famugosto, on the island of Cyprus; Pera, a suburb of Constantinople, and Kaffa, in the Crimea; as well as factories in Sinope, Trebizonde, and Sebastopol. For long Genoa was an ally of the Byzantine emperors, and through their favor enjoyed almost a monopoly of the commerce of the Black Sea. The period of bitter rivalry between Venice and Genoa may be said to cover most of the thirteenth and fourteenth centuries. During this time there were numerous clashes of arms between the fleets of the enemies, which did not always result in victory for the Venetians. However, by the great naval battle of June 24, 1380, when the Genoese fleet was destroyed, the power of Genoa was broken. For a hundred years and more, Venice was destined to rule the commerce of the Mediterranean. For her crushed rival had been reserved the honor of nurturing the boyhood of that indomitable spirit who was to find a New World.

The era of greatest glory and prosperity for Venice had arrived. Her merchants were found in every city of the Mediterranean and Black Seas, as well as in the commercial cities of northern Europe. Daru, in his "Hist. de la republ. de Venice," tells us that in the fifteenth century the exports of Venice amounted to 10,000,000 ducats annually. (The value of a ducat at this period was approximately one dollar.)

The Venetians at this time possessed a merchant fleet of 300 great galleys or argosies, and several thousand smaller vessels, as well as 45 war galleys. Daru is authority also for the statement that at this period Florence and Milan alone purchased annually from Venice 50,000 hundredweight of cotton, sugar to the value of 95,000 ducats, and great quantities of pepper, cinnamon, ginger, and dyestuffs. (Tschirch, p. 699.)

The larger Venetian vessels of that period probably did not greatly exceed 200 tons in burden. They were called argosies because built for the Venetians at Raguso, a Dalmatian seaport; older forms of the name being *ragosie, rhaguse,* and *ragusye.* In Shakespeare we find a picture of Venetian commerce:

> "Your mind is tossing on the ocean;
> There where your argosies with portly sail,
> Like signiors and rich burghers on the flood,
> Or, as it were the pageants of the sea,
> Do overpeer the petty traffickers."
> —*Merchant of Venice,* Act I, Scene i.

It was the policy of the Venetians to erect in the more important foreign ports *fondachi* (from the Arabian *fonduk,* a magazine). These were substantial structures, several stories in height, enclosing courtyards. The lower story was used as a warehouse and salesroom, the upper stories served as dwelling houses for the Venetian merchants resident in the port, as well as stopping places for merchants from the interior who had come to buy and sell.

As early as the thirteenth century, Venice had maintained commercial relations with Beirut, with Ajaccio, the port of Aleppo, and with Tabriz in the interior. We know that from these cities the Venetians obtained myrrh, ammoniac, lac, galangal, sandal-wool, camphor, and indigo, as well as various spices and other products of Asia. (Tschirch, p. 701.) However, their business with Alexandria far exceeded in volume that with any other port. The Moorish merchants brought the products of the farther East by way of the Arabian and Red Seas to the port of Suez, thence overland by caravan to the Nile, and down the Nile to Alexandria. Here East touched West; here the Moors, who controlled the commerce of the Mohammedan world, trafficked with the Venetians, who dominated that of the Christian. By long experience in dealing with the Turk, the Venetians had come to know his ways, and it was always the policy of Venetian statesmanship to maintain friendly relations with the Sultan of Egypt. Even during the period of the Crusades the Venetian merchants had not been averse to accepting Moslem gold in payment for military supplies.

Having seen something of the manner in which the Venetian merchants obtained their supplies of eastern spices and drugs, let us follow these wares on their journey to the nations of northern Europe; for the Germans, Flemings, French, and English were at this time dependent almost entirely upon the Venetians for the spices which they were using to flavor their food, for the gums and balsams used in the healing art, for the aromatic woods and resins used as incense in their churches, and for the dyestuffs with which they colored their woollen goods.

The centre of the commercial life of Venice was the Rialto, the merchants' exchange, built upon an island of the same name. If commerce was the life-blood of Venice, then truly the Rialto was the heart. Here, in the days of Venetian glory, gathered merchants, princes and adventurers, the bankers and money-lenders, as well as merchants from Lombardy and Tuscany, from Bavaria and Hungary, from France and Germany. Here it was that Shylock heard the news of Antonio's many ventures, of his argosies despatched to Tripoli, to Mexico, and to England. (*Merchant of Venice,* Act I, Scene iii.) The treatment received by the merchant of the North while he was in Venice should be noted. He was required to live in the *Fondaco dei Tedeschi,* which served as warehouse and hotel. He was carefully watched by an official assigned to him, whose business it was to see that the State was not cheated of its revenues, and that Venetian merchants were not deprived of their profits. (Day, "History of Commerce," p. 95.) He could trade with no one but the Venetian merchants, for no one else must be allowed to make the middleman's profit. Having brought his goods to Venice, he must dispose of the entire quantity, even though the market was poor. These and many other restrictions he submitted to, simply because Venice held the monopoly.

The merchandise purchased by Germans in Venice was transported over the Alps, and this traffic was in the hands of the Germans themselves. Various passes were utilized, but one of the very important trade routes followed the valley of the Etsch, through the Veronese defile, over the Brenner Pass to Innsbruck, then up the Isar and Lech valleys to Augsburg. Convoys intended for the Rhine valley struck to the westward before reaching this point. Up the steep mountain roads creaked and rumbled the heavy freight wagons, guarded by strong detachments of armed men, for these mountain defiles were infested with robbers. (Tschirch, p. 70.)

The needs of western Europe and England were served by a fleet of Venetian galleys which left yearly for the voyage to the ports of these countries. The "Flanders galleys," as they were called, were each rowed by 180 oarsmen and carried a force of archers for protection against pirates. Although the cargo belonged to merchants, the fleet was under State control, and was commanded by an officer serving under the Venetian Government. Among the ports of call on their voyage were Pola, Corfu, Alicante, Almeria, Cadiz, and Lisbon; although many others were visited, at least on some voyages. For most of the galleys the outward voyage terminated at Bruges, in Flanders, at that time the emporium of northern Europe, and the point at which the Venetian met the merchants of the Hanseatic

League. Some of the galleys, however, went to London or Southampton. (Day, "History of Commerce," p. 97.) Venetian galleys were making these voyages as late as 1578, when an argosy was wrecked off the Isle of Wight. The Venetians declared they would not again send their vessels into such dangerous waters, and this incident stimulated interest among British merchants in direct trade to the Levant, which led to the organization of the Levant Company. ("Early Voyages to the Levant," Hakluyt Society, p. 11.)

Venice was a merchant republic. Her nobility, far from scorning vulgar trade, were proud to be merchant princes. Young patricians were sent on the Flanders voyages to study commerce and to learn to serve their city. (Day, p. 97.) Significant of the grateful acknowledgment by the Venetians of the sea as the giver of all their prosperity was the annual ceremony of the symbolic marriage of the Doge to the sea; when, clad in all the splendor of his ducal robes, from his official galley he tossed into the Adriatic a golden circlet, and repeated the words: "We thus espouse thee, O Sea, as our bride and queen."

The fearless sons of San Marco, filled with the spirit of adventure, but shrewdly seeking in all to direct to the marts of their mother city still other consignments of rich Oriental wares, wandered from the familiar channels of trade, and penetrated deep into the interior of Russia and of Asia. The most authentic travel narratives of this period are those which have come down to us from Venetian merchants who wrote letters to journals descriptive of their travels. They wrote of the people, their religions, their manners and customs, their institutions. But they wrote with especial care, and generally with great accuracy, of the resources and products of the countries visited, as well as of trade routes and commercial usages. Some of these records are of particular interest to us as furnishing the earliest authentic information in regard to many Asiatic drugs and dyestuffs.

Very efficiently had Venice served the nations of Europe as a carrier and middleman, but at the close of the fifteenth century she went down before the march of progress. Due to many reladings, as well as to exorbitant customs levied by the Sultan of Egypt, pepper and other products of the East were very expensive by the time they had reached the marts of northern and western Europe. This doubtless was one of the reasons that caused the Portuguese to seek the Cape route to India. From the moment when Vasco da Gama sailed into the harbor of Calicut, May 20, 1498, the commerce of Venice was doomed. Priuli, in his diary, has given us a picture of the consternation which reigned in Venice when the news was noised on the Rialto that Portuguese carracks, laden with Indian spices, were in the harbor of Lisbon. He says: "The whole city was disturbed and astounded. . . . For it is well known that Venice reached the height of her reputation and riches through her commerce alone, which brought foreigners to the city in great numbers; and now by their new route the spice cargoes will be taken straight to Lisbon, where the Hungarians, Flemings, Germans, and French will find the goods cheaper in Lisbon than they can be in Venice." (Horatio F. Brown, "Venice," pp. 324–325.) This was not the first time in the history of Venice that news of grave import had been received, but never had the proud city heard tidings that spelled ruin as did this report of the Portuguese voyage to India. However, the Venetians made an effort to avert the disaster. Leonardo da Ca'Masser was sent to Lisbon disguised as a merchant to obtain accurate information. Venice took steps to discourage the Portuguese from trading in India by inciting the Sultan of Egypt to equip a naval expedition to coöperate with the forces of the Indian princes in an attack upon the Portuguese. Such an expedition was sent out, but was utterly defeated. (Thomas Okey, "Venice," p. 191.)

The Venetians were deterred by several reasons from themselves taking advantage of the Cape route. In the first place, they had in Alexandria warehouses stored with rich goods, which they were afraid would be sacked by the Egyptians, should a part of the Venetian trade be transferred elsewhere. Then again the Strait of Gibraltar was controlled by Spain, which power would have levied duties on Venetian cargoes. Perhaps the most important reason was the realization that the Portuguese possessed a tremendous advantage in greater nearness and accessibility to the markets of northern Europe. (Brown, "Venice," p. 325.) When Cabral, the commander of the second Portuguese voyage to India, returned to Lisbon in June, 1501, with heavy cargoes of Indian wares, King Manuel sent word to the Venetians, by their ambassador, that they need no longer expect to load spices at Alexandria, for few would be found there, but that they might come to Lisbon for them. (Tschirch, p. 701.) The commercial decline of Venice, as well as that of Alexandria, dates from the discovery of the Cape route to India.

(To be continued.)

ASSOCIATIONS.

Many men, it seems to us, have an entirely erroneous idea of what an association is. Their attitude toward their trade association leads us to think that they view it as an entity entirely apart from themselves; a sort of machine into which they are invited to drop their annual dues, on the promise of receiving certain benefits in return.

Nothing could be farther from the true idea of an association, which the dictionary defines as "a combination of persons for the purpose of securing or accomplishing mutually desired ends."

To accomplish these ends it is needful that every member do his part. The work cannot be left wholly to the officers, be they ever so competent and willing. Neither can the chairmen of the various committees nor the entire committee membership do it all. They must have the counsel of the rank and file, and be made to feel that in what they undertake to do they have the backing of the entire membership. An association is not a little body or clique that promises to do something for others for pay in advance, but a body, small or large, that *tries* to do something for itself. Unfortunately for the success of association work, which depends to a large degree upon the measure of support received from those who are benefited, the benefits obtained cannot be confined to the membership, but go in almost equal measure to others who have not contributed anything in return.

These, by refusing to join in with the others, not only take to themselves benefits unearned by them, but they prevent the accomplishment of greater things for both themselves and others by withholding the aid that would in many instances turn the tide the right way. We believe that trade associations do a vast amount of good, not only for their members, but for all persons engaged in that line of trade. We believe they are worthy of much more general support than they generally receive, and, finally, we believe that much greater good would be accomplished if this support could be secured.

Membership in a trade association is not an expense, but one of the best paying investments that can be made.—*Rocky Mountain Druggist.*

SECTION ON COMMERCIAL INTERESTS AND SECTION ON EDUCATION AND LEGISLATION

DESIRABLE LEGISLATION AS AN AID TO MAINTAIN PHARMACY.*

BY J. H. BEAL.

The above topic, expanded to fit the complete idea in the mind of the Chairman at the time he requested me to make it the subject of a paper, would probably read about as follows: To what extent can legislation be utilized to advance the calling of the pharmacist and at the same time sufficiently conserve the interests of the whole community?

We desire to advance our professional and business interests because we are human, but we desire also to advance the general public interest, first, because we are good citizens, and, second, because we realize that class advantage gained at the expense of the general welfare can have only ephemeral existence, and that in the end the holders of special privilege must come to disaster.

In my salad days I wrote an essay with the sophomoric title "Education, Organization, and Legislation, the Means of Pharmaceutical Salvation," in which I allotted to legislation a very liberal share in the work of regeneration. I still believe in the saving force of this trinity, but have learned to regard legislation as a corrective of initiative rather than as a prime motive power to force initiative.

I have no patience with the theory that the law may be used to make profitable the business of any particular class of individuals, except in so far as such profit may be incidental to the result of measures which tend to bring the greatest good to the greatest number.

Pharmacy ought not to have, and I believe does not want, coddling legislation or special privileges gained at the expense of the remainder of the community. If the art of the pharmacist survives, it will be because it is able to serve the material interests of society better than the instrumentalities which seek to supplant it. Unless it can justify its existence by serving some useful part in the grand purpose of things we must expect it to pass like other arts that have outlived their usefulness.

It is easy enough to quote such high-sounding phrases as the "general welfare," the "public good," etc., but the question is: What do we mean by them, and how far are we sincere in coupling such phrases with measures that mean to serve our own particular advantage?

It is also easy enough to exalt ourselves into a state of mind which will enable us to regard our professional functions of such public importance that we can believe that whatever advances them is an agent for advancing the general welfare; but to make the facts square with these pretensions is a different proposition.

The only logical foundation for a law regulating admission to the practice of pharmacy is the necessity of protecting society against the consequences which might be expected to follow the dispensing of drugs and poisons by ignorant persons, or by persons so morally perverted that they will readily lend themselves to the service of evil, which, owing to the peculiar nature of the business, can be carried on with comparative immunity against detection. If the above reason be the true one, and the imposition of certain educational and moral tests upon those who desire to engage in the business of selling drugs and poisons does really minister to public security, then existence of the law is justified, and the only important problem is to determine the height of the educational wall which must be climbed by those seeking admission. Doubtless the public advantage would be served by raising this wall to such a height that only those who were educated to the very highest degree of efficiency and of the very highest type morally would be granted the privilege of compounding and dispensing drugs, medicines, and poisons.

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* Read before the Section on Education and Legislation, A. Ph. A., San Francisco meeting.

Such would be the character of the tests imposed in a theoretically perfect state, but we do not have a theoretically perfect state to experiment with, and therefore must fit our requirements to the present imperfect one. In other words, our ideals are subject to the practical limitations imposed by the necessity of fitting them into the social state in its present imperfect condition.

So far are theory and practice remote from each other in political and social spheres that to speak of a condition as ideal is virtually the same as declaring it incapable of realization. Not only is it impossible to impose upon the state the laws which we to-day would regard as ideal, but it is unlikely that we could devise statutes which would meet the views of future generations as to what ideal legislation should be. What might be regarded as highly desirable to-day might be regarded as the opposite by the next generation, because by then the direction of progress may have so altered that old ideals would no longer be applicable. The ideal stage-coach never reached fruition, because before the time came for it the stage-coach had been supplanted by other methods of transportation.

What may be regarded as ideal under one set of conditions might be regarded as the reverse of ideal under a different set of conditions. The practical limit always set to our efforts at reform is to make them fit into the conditions as they now exist, yet giving them a slant towards conditions as we would like to see them become.

In every step we take toward the future we must compromise with the present. Compromise is invariably the price of progress. It may sound fine and grand to declare that we will accept no compromise for what we believe to be the correct thing in legislation, but if we stand by this position we must give up the hope of progress. The present stubbornly insists upon its rights, and will yield concession only in return for concession. The uncompromising reformer is a clog on progress, by retarding the separate short advances which in the aggregate make great ones.

The Personal Interest of the Pharmacist in the Pharmacy Law.—We have said that the only logical ground upon which the state can impose restrictions upon the practice of pharmacy is the necessity of protecting the public health and general welfare, and not the pharmacist's private interests.

But, having imposed these restrictions upon one class of citizens, the state must impose them upon all. If only those who call themselves pharmacists are required to pass a special educational test, while others are permitted to exercise the same functions without supervision, then the state has not only imposed an unjust burden upon the pharmacist, but has failed in the effort to protect the public health, since the bulk of business will eventually flow to those who have the least extra burdens to bear and are therefore freest to meet competition.

The pharmacist's demand, then, is not that the state shall provide him with the means of livelihood, but that he shall not be discriminated against by the granting of special privileges and immunities to his competitors. He asks nothing more than the fair requirement that the same test be imposed upon all who seek to perform the same functions.

In making such a demand, however, it must be remembered that general rules cannot be made to fit all special conditions and circumstances, and that theoretical consistency must sometimes yield to practical necessity.

It is easy enough to say that the inhabitants of sparsely-settled districts are as much entitled to the best of medical attendance and to the best of dispensing service as those who dwell in the cities, but, since it is confessedly impossible for them to obtain such services, they must be given the opportunity to provide themselves with the next best services obtainable.

It would be a fine thing for the physician if no one could obtain a dose of medicine without his order, and a fine thing for the pharmacist if he could have an absolute monopoly in supplying these doses, but both physician and pharmacist had better conserve their breath for the refrigeration of their porridge rather than to waste it in crying for something they are not likely to get.

There is no use butting our heads against the logic of circumstance. Physicians who practise in the country districts must be permitted to carry their own medicines with them; the people who live in communities distant from a drug store must have the privilege of satisfying their wants for simple drugs and package remedies at the nearby general store, and these privileges must continue until the state is ready to assume responsibility and supply medicine and medical attendance by parcel post, along with the catalogues of mail-order houses.

Not only must the physician be accorded a reasonable liberty in dispensing, but he must be ready to accord the pharmacist a like reasonable liberty, and not threaten him with a medical practice act for recommending simple cures for simple ailments.

There is a zone in medicine where the functions of physician and pharmacist have always overlapped, and always will overlap, regardless of codes and formal resolutions. Just where the division should come between the respective functions of physician and pharmacist is a matter of dispute, and the line is likely to shift with the interests and prejudices of the disputants. As located by the pharmacist it is likely to extend well into the domain which the physician claims as his own, and when located by the physician is likely to extend clear over the domain of the pharmacist and into the regions beyond.

One way of settling this dispute is for each profession to strive to set the boundary line as far over into the territory of the other as possible, in which case the side having the best politicians will probably obtain the most advantage, and this is the method to which physicians and pharmacists have been accustomed to settle their differences in the past.

It may sound like a paradox, but it is nevertheless true that physicians and pharmacists quarrel most when they remain separate, and agree best when they come together. When they come together in good faith and discuss their differences with open minds, many of the supposed grievances disappear into thin air, other points of disagreement are removed by explanations, and some fair ground for compromise can nearly always be found upon points concerning which exact agreement cannot be had.

The rational way, then, for pharmacists and physicians to determine the location of the boundary line to be established in the pharmacy law is by mutual agreement between representatives of their respective national, state, and local associations.

The first, or "Donnybrook," method has been tried without satisfaction to either side; why not give the second method a trial?

The Standardizing of Pharmacy Laws.—One of the first steps toward desirable legislation as an aid to pharmaceutical progress should be an effort to standardize, or bring about substantial uniformity in the principal features of the laws pertaining to pharmacy, and food and drugs in all of the states. This movement can be inaugurated by the preparation of a series of model forms, or patterns, based upon a careful study of existing laws, and modified to correct admitted defects which have been exposed by experience, in the preparation of which pattern-laws all of the associations, national, state and local, should be invited to take part, so that when they reach completion we may feel confident that they represent the best ideas capable of practical realization.

It is true that various so-called model laws have appeared from time to time, but usually they have been the work of a single committee and under the auspices of only a single association. That they have been of value is shown by the fact that subsequent legislation has been largely patterned after them; that they were not sufficiently discussed in advance is evidenced by the fact that in many cases they were largely amended before being offered to the various legislatures. If all of the associations had been consulted in the preparation of these models, it is reasonable to presume that they would have been considered satisfactory in a larger number of instances, and that there would now be substantial uniformity in the principal provisions of these laws, with only such minor differences in details as would naturally be necessary to meet the requirements of local conditions.

The Drafting of Pharmacy Legislation.—It is not possible to expect too much care in choosing the phraseology of pharmacy laws. Every word and phrase should be scanned with a jealous eye until it is certain that it expresses just what it is desired to express and nothing else.

No one can perfectly realize the possibilities of the English language until he has seen a name or phrase which he thought meant one thing construed by a court or administrative official to mean some quite different thing.

The measure should be made as far as possible self-interpreting. Such general terms as "derivatives," "synthetic substitutes," "physiological equivalents," "habit-forming drugs," "narcotic drugs," "poisons," "poisonous drugs," etc., should be avoided as pestilential, unless accompanied by qualifications and definitions which clearly limit the sense in which they are to be understood. The prime requisites of good statute law are definiteness and certainty, and these are impossible with the use of terms which are used in half a dozen different senses by different authors or by the same author at different times.

All of the intended requirements should be expressed in the law, and they should be made specific. It should not be left to some official bureau to read into the law, under the guise of rules and regulations, provisions and requirements which would have been objected to if they had been plainly stated in the original measure.

To construct a statute upon this plan means that more or less repetition will be necessary, that much detail must be introduced, and that the completed statute will not be easy reading. A statute devised for literary enjoyment will be cut up into crisp paragraphs of convenient size, each theoretically completely disposing of a phase of the subject by means of a few general terms, and the whole draft will be free from embarrassing exceptions and parenthetical clauses. Such a draft may be a literary joy, but after it has been twisted in the legislative mill by the injection of numerous exceptions into the midst of those general terms, and then has been rolled flat by the decisions of the Supreme Court, it will be a sight calculated to make angels weep.

HOW CAN THE COLLEGE OF PHARMACY BEST HELP THE STUDENT TO SECURE AN APPROPRIATE COMMERCIAL TRAINING?*

BY WILLIAM C ANDERSON.

The college of pharmacy that is founded on right principles will always have as its chief objects the stability and elevation of pharmacy and the conservation of the public health and welfare.

The stability of pharmacy depends to a great extent upon the proficiency, inclination, and character of those who are to perform its delicate and important duties, their ability to successfully meet the varying conditions in professional and commercial life, and the character of the service to the physician and the public.

The elevation of pharmacy will proceed as the college graduate, thoroughly equipped to render the most exacting, scientific, and accurate service under all circumstances involving the preparation, keeping, and distribution of drugs, stimulated with a high regard for his chosen profession and trade, and fortified by a keen realization of his obligations and responsibilities, recognizes its ideals and in his daily practice conscientiously strives to reach them.

The conservation of public health and welfare is the most vital problem which mankind has to face to-day, for activity ceases, enterprise fails, hope vanishes, and the brightest prospects are dispelled when health leaves.

The pharmacist's position in this respect is such that there is required the most intimate knowledge of the weapons by means of which the object can be obtained, accuracy in manipulation that safeguards every possibility of error and disaster, and a clear perception that engenders and fosters highest efficiency.

COLLEGE OF PHARMACY MUST PREPARE STUDENTS TO MEET ALL REQUIREMENTS.

The college of pharmacy, then, in carrying out its objects, must prepare the student to meet all of these requirements and thus be in a position to successfully and effectually carry on the work of his choice.

These requirements are so closely allied that one cannot be separated from the others without weakening, if not destroying, the whole.

The knowledge of drugs without the knowledge that will enable one to properly handle and combine them would be of little use to the pharmacist, and thorough knowledge both of the drugs and methods of manipulation would be dangerous in the possession of one who did not appreciate their dangers and activities, their uses and misuses.

Still, with all these requirements fulfilled, we find ourselves facing the fact that, with all his technical knowledge, professional skill, and high character, the college-trained man has but produced something that is practically useless until he enters the field of commerce and places it within the reach of the consumer. Commercial training, then, must of necessity form an important link in the chain of pharmaceutical knowledge.

EVERY PROFESSION HAS ITS COMMERCIAL SIDE.

I am aware of the fact that linking commercialism with professionalism is frowned upon by many in other professions and by some in the ranks of pharmacy.

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* Read before the joint session of the Section on Commercial Interests and the Section on Education and Legislation, A. Ph. A., San Francisco meeting.

and, while it is conceded there is a danger-line in such connection that should carefully be avoided, that every profession has its commercial side cannot be denied; in fact, if it were not for the commercial advantages secured through a profession, many of our professional schools would soon close their doors on account of insufficient applicants for their degrees.

There may be some instances where the desire to continue a family record or noble impulse of the benefit one might be to his fellow-man has been the incentive to enter a profession, but in the great majority of cases I venture to predict that the one impelling motive was the thought of the means of earning a livelihood.

I believe the commercial side of a profession influences the standing of that profession, for the greater the financial success the easier high ideals may be established and maintained.

THE COMMERCIAL TRAINING OF THE PHARMACIST.

The commercial side of some professions consists principally of selling service and keeping accounts, and the commercial training required can be regulated accordingly.

The practice of pharmacy, however, usually entails extensive merchandising, and the commercial training of the pharmacist must be such as will enable him to protect his interests in every instance.

In addition to buying and selling goods, the conduct of his business involves the purchase or rental of real estate, banking, contracts, handling negotiable paper, etc., all of which requires a general knowledge of commercial law.

Attracting and keeping trade through advertising or other methods, the care of stock and its attractive display, treatment of customers and system in business are all important factors in the every-day work of the drug store.

The unsatisfactory conditions complained of by some retail druggists and the total failure of others are, in many instances, the result of deficiency in commercial knowledge, lack of appreciation of its importance to business success, or failure to properly apply one's knowledge and opportunities.

Too many retail druggists estimate their success by the amount of daily, monthly, or yearly sales. Increased expenses, higher prices for goods, and, in the absence of an inventory, which is a most general condition, reduction of stock are given little, if any, consideration.

The rapidity with which a business conducted under such deceptive conditions can be undermined and destroyed must be apparent to all and leaves the impression that in these days of rigid competition and changing business conditions, more than ever before, commercial training of the pharmacist and the rigid application of that training by him are most essential.

Losses through making contracts, signing legal documents, indorsing notes, and similar procedure have not been infrequent in our line of business, and such losses can frequently be traced to lack of appreciation of the responsibility assumed in each instance, and such lack of appreciation to ignorance concerning the simple principles of commercial law.

COMMERCIAL TRAINING MUST BE PART OF THE COLLEGE COURSE.

If, then, commercial training is a necessary requirement for the pharmacist, the college of pharmacy that would live up to its principles and do its whole duty has no alternative in the matter; excuses and evasion cannot be tolerated; it must include commercial training of its students as a part of its course of instruction.

It will not be surprising if there are found colleges of pharmacy or departments of pharmacy connected with some of our universities that will view this subject from a different standpoint and contend that the work of the college should be confined to professional training, and that commercial training should be a part of the experience secured through drug-store practice.

While not well founded, this contention should open the eyes of the pharmacists of the country to the fact that our colleges and departments of pharmacy are gradually separating into two classes.

One regards drug-store experience and training as insignificant, when compared with regents' counts, as a foundation for the study of pharmacy, and has as the chief aim the preparation of highly scientific men with earned degrees and counts that will enable them to reach out into still higher attainments and professions.

The other, while fully appreciating the value of a good preliminary education as a stepping-stone to advanced study, ever recognizes drug-store experience as essential to complete pharmaceutical training and has as its aim the thorough preparation of pharmacists for pharmacy.

Unless indications are misleading, the time is not far distant when pharmacists and boards of pharmacy will have to decide which of these classes is conserving the best interests of pharmacy and which is entitled to recognition.

The commercial training required by the pharmacist is so varied in its character, the college of pharmacy cannot hope to cover every phase of it in a thoroughly practical way.

Some of such training cannot be completed except by personal contact with customers; as, for instance, the sale of goods and general conduct incident thereto.

The teaching of commercial training, however, does not differ, to a great extent, from the teaching of other subjects that form an important part of the college curriculum, for the facts and principles taught and the practical exercises pursued can but serve as a safe and substantial foundation for that perfection in art and professional practices that can only be reached through practical application of the knowledge secured and repeated performance of the processes and methods involved.

The college of pharmacy can and should instruct its students in the proper and successful conduct of the drug store as constituted to-day.

This instruction should include buying and selling and the necessary transactions with reference to the same that affect the profits, contracts, and the rights and obligations of each party thereto, as well as different forms and characters of contracts, quality of goods purchased, quantity, buying, rebates and discounts, bills of lading, bills of sale. bills of exchange, receipts and discharges should all be given particular consideration.

The care and display of stock, window dressing, service, treatment of customers, handling accommodations and accounts, and system in business should be dealt with in such a way as to impress the student with their importance and induce him to adopt up-to-date and advantageous methods with reference to the same.

Instruction and practical work in book-keeping that will enable him to at least keep accurate and complete accounts with those with whom he does business and a correct record of his personal business affairs is absolutely necessary.

Correspondence, insurance in all its different forms, property, both real and personal, banking, mortgages, bonds, notes and deeds, with points of law bearing upon the same, should be given the attention their importance demands.

In fact, the course in a college of pharmacy, to be complete, must prepare the graduate to enter upon his life's work fully equipped to avoid the snares of business life, conduct a drug store in a successful manner, and give to the public most acceptable and beneficial service.

SOME DIFFERENCES BETWEEN PHYSICIANS AND PHARMACISTS: A PLAN FOR RELIEVING THEM.*

BY P. HENRY UTECH.

As pharmacists we have all observed the gradual changing character of our businesses within recent years and perhaps have often paused in reflection to wonder just where the procession is leading us. The pharmacist of to-day is not the pharmacist of a decade ago, nor again of yester-year. The changing times bring new conditions, and these must be met, studied, and applied if we are to play our part successfully in the great game of business.

Of the many basic causes underlying these changing conditions, perhaps the one most frequently heard is the complaint of the dearth in prescription writing by the physicians, and it is the aim and purpose of this paper simply to pave the way for a discussion of one phase at least of this problem—the suggestion of a possible plan of educating physicians along ethical lines—in the hope that the discussion ensuing may be both profitable and mutually helpful.

Chief among the reasons for the growth of non-prescribing by physicians is the one that pharmacists frequently make an excessive charge for prescriptions which call for such simple remedies as calomel or strychnine tablets, quinine pills, etc.—the charge being out of all proportion to the service rendered; and because of this extraordinary charge the physician, seeking his patient's every interest, in consequence, is compelled to give away gratis these simple remedies, thereby depriving the pharmacist of this particular source of revenue. If, then, this condition is a general one, it behooves us as pharmacists desirous of conserving our every interest to inaugurate some definite action or movement in order to clarify the situation and endeavor in some manner to bring about a mutual understanding or arrangement between the two professions.

In preferring these charges against our profession, I am inclined to think that the physician views the transaction from a purely selfish viewpoint. Many factors unknown to the average physician—or at least not taken into consideration by him—enter into the cost of properly compounding a prescription, such items as clerk hire, overhead expense, cost of containers, materials, etc.—all of which form the basis for the charge which, I dare say, in the vast majority of cases, is neither excessive nor illegitimate. Further, the true pharmacist regards it as a part of his mission to safeguard the interests of his patron's welfare, both physical and material, on the same plane as does the physician.

Generally speaking, I do not believe that this matter of unfair charging is warranted by the facts. While it is true that pharmacists do make a reasonable charge—*i.e.*, from 25 to 35 cents for a dozen pills or tablets when same are directed to be specially prepared, or whenever some pharmaceutical process is called into play—but the charge in such instances, I maintain, is within reason and therefore perfectly legitimate. On the other hand, I do not believe that the average pharmacist makes an excessive charge for a prescription calling for a dozen or two of the regular stock pills, tablets, or triturates. On the contrary, it has been proved that in most instances the charges have been too low rather than too high.

In order to obtain some definite data as to the actual profit on prescription work in general, Mr. F. W. Nitardy, of Denver, propounded this query in a very terse paper before the Colorado Pharmaceutical Association, outlining a summary of

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* Read before the joint session of the Section on Commercial Interests and the Section on Education and Legislation, A. Ph. A., San Francisco meeting.

10,000 prescriptions from ten different pharmacists. All the factors of store management and expense were taken into consideration, and the analysis showed the average cost of the prescription to be 36⅔ cents, while the average retail price was 50½ cents, showing an average gross profit of approximately 27⅓ percent. As the cost for running expenses of the average store is at least 25 percent (and in some cases very much higher), you can readily see that the pharmacist's chief source of revenue no longer comes from the prescription department, as the general public and many physicians erroneously believe.

Another point of frequent misunderstanding, which ofttimes causes the pharmacist much embarrassment, is the practice of physicians in telling their patients the probable cost of a prescription, basing their conclusions generally on the size of package or container, irrespective of the cost of material or method of preparation required. To my mind this is a grievous error on their part, because physicians are invariably ignorant as to the cost of the ingredients of a prescription and therefore ought never to assume positive knowledge of the exact price to be charged therefor. Particularly is this true of present-day conditions, when the drug market is in a veritable state of upheaval and the druggist himself is ofttimes in a quandary to know just how to fix the proper charge. As illustrative of this point, I have in mind a physician who quoted an off-hand price to the patient for a given prescription, whereas the real charge was more than double. Upon investigation, I learned that the doctor had based his estimate on a price-list more than three years old. Instances such as these reflect on the integrity and good name of the pharmacist merely through thoughtlessness or lack of judgment on the part of the physician.

The foregoing, then, are merely a few of the many points of difference which are of frequent occurrence in almost every community. Doubtless there are many others, each community having its own peculiar and particular problems to contend with. The point I desire to emphasize is, that misunderstanding and petty differences do exist between the members of the two professions, many of which could be ameliorated and ofttimes entirely eliminated by the simple expedient of education or diplomacy properly applied.

How to successfully bring about this condition is the question. The one proper, honorable, and perfectly feasible thing to do is to begin at the very root of the matter and plan a joint meeting of the members of the two professions of any given city or community. Arrange for a banquet with the physicians as guests, if necessary. Our own experience has been that this effort has more than repaid for the expense involved. Wherever local medical societies exist, this can be easily arranged. At such a get-together meeting, plan to have one of the leading pharmacists and invite a prominent physician, each to make an address presenting his respective side of the question. The discussion following could not possibly fail to be of inestimable value to all concerned and would undoubtedly prove to be a large factor toward clearing up many of the petty differences which constantly arise between members of the two professions and which are a source of constant annoyance and embarrassment to the pharmacist.

In certain communities, wherever these differences are regarded as of sufficient importance, delegates could be appointed to present the whole matter later on, more exhaustively, first, at a meeting of the county medical society, and later before the state medical associations—these organizations being all affiliated bodies of the American Medical Association. By the faithful carrying out of these simple suggestions much desirable publicity would be given these all-important problems and an approach, at least, made in the right direction toward restoring the status and good name of the pharmacist.

ADVERTISING.*

BY W. C. ALPERS.

A paper on advertising written by the dean of a school of pharmacy seems at first sight to be an anomaly, and doubt might be raised whether a teacher could shed any new light on this often-discussed and still vexed question. My explanation—or, if you choose to call it, apology—for presenting this paper at the Commercial Section is twofold. In the first place, I have behind me a long service as a practical druggist, extending over more than twenty years, during which time I have had charge of pharmacies of all sizes and kinds; have been connected with manufacturing and wholesale interests, and have at times conducted advertising campaigns of large firms extending over the whole of the United States. Besides this personal experience, I have for many years carefully watched the advertisements of others, and from this standpoint alone—that is, from the standpoint of the reader of advertisements—it might not be without interest to listen to these observations. Let me speak on this second subject first.

An advertiser is inclined to value his advertisement, and consequently the expected results, in proportion to the time, thought, energy, and expense devoted to it. He ponders for days or weeks over a certain circular; he exercises the greatest care in the selection of the type, the typographical arrangement of the words, the quality of the paper, and other matters that he believes to be of importance. He spares no expense in producing the most elegant circular; he sends it out by personal letter; in fact, he does not neglect anything that seems to make for the success of his advertisement. The results are disappointing. They are in no proportion to his efforts. His disappointment grows into disgust, and he decides that advertising is a useless enterprise, and the money spent for it wasted. At other times he will write up a small circular on the spur of the moment; he pays but little attention to it, but distributes it because he feels that something ought to be done. He hardly expects any results, and, to his surprise, he discovers that every second customer will speak of that little circular and ask for the goods, and results are far beyond his boldest expectations.

When I myself awoke to this fact and discovered that the results were seemingly in no proportion to the effort and expense, I naturally tried to find the cause of this apparent contradiction, and the question arose in my mind: What constitutes a good advertisement? A question that has not been answered satisfactorily to-day, although thousands of experts have tried to answer it, and millions of dollars been spent to discover the answer. An observing tradesman will soon recognize that he must look to the public for an answer; that the success of an advertisement is determined by those who read it, and not by him who writes it. He must read their thoughts and use them so that the circular will sound in their minds like an echo of their own thinking.

Another important point is to fix the object of the advertisement and to be clear on that point. Is it your intention to put new things, new articles, new combinations before your old customers, or do you wish to gain new customers for the things you have had on sale for years? According to these two objects your advertisement must be shaped differently. You can introduce new articles by samples or by depicting results; by bringing their existence again and again to the notice of your customers. Persistent efforts are here needed, and you cannot repeat the same argument often enough. This fact is well known to the manufacturers of proprietary articles, who will send you thousands and thousands of circulars to be used as counter wrappers and bring the articles to the notice of *your* customers. Unfortunately there are a good many druggists who accept such circulars and distribute them free to their customers, and, instead of training them to look to their local druggist as a source of information on remedies for small ailments, induce them to buy these ready-made proprietary goods on which the profit is generally insignificantly small. If, therefore, such a method of advertising appeals to you, by all means have your own circulars printed and advertise on them some article of your own make.

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* Read before the Section on Commercial Interests, A. Ph. A., San Francisco meeting.

By these methods new customers are but rarely gained. You reach only those who already deal with you. You must go outside of your store, you must increase the number of your friends and must bring your store, your goods to the notice of people that you did not know before and who do not know you. For this purpose, get a list of people that live in your neighborhood. Use your own ingenuity in getting such a list. Watch over it and correct and extend it from day to day. In large cities you can sometimes employ the boys in your neighborhood. Let them go from house to house in a certain block or a certain street and find out who lives in each house. By paying them a cent for so many names you can soon compile a list of two, three, or five thousand prospective customers, or even more. Arrange this list in two different ways: first, alphabetically, and, second, according to streets and numbers. Write to all of them, or send them circulars, but always word your circular in such a way that it appears as a personal letter. If you tell Mrs. Smith that her beautiful complexion can be preserved for years, and even improved, by your cold cream, it will appeal to her much more than by telling her that John Brown's Cold Cream will remove freckles, blotches, and other blemishes of the skin. If you send John Miller a circular praising the advantages of your digestive pill, he will read it and put it aside, but if you word your circular in such a way as to tell him that the discomfort he felt after his large, big dinner could have been avoided by quietly slipping down one or two of your digestive pills with his demitasse, he will remember it much better. This drafting of a circular to make it appear a personal appeal to the person who reads it is a skill and an art worthy to be studied and practised by every enterprising business man. But this emphasis of the personality does not only refer to the receiver of the advertisement, but, in a much greater degree, to the writer. Whatever he sends out, let it bear the stamp of individuality, and this stamp must be the same, no matter to whom you write or on what subject. All your letters, all your advertisements must have some distinctive mark by which they are recognized; which makes them stand out as a class of their own; which compels attention and comment. A well-chosen trade-mark, such as Castoria, Listerine, and others, emphasizes this truth. But, as it is impossible to trade-mark everything in your store, you should give your circulars a distinctive mark that is the result of brain-work, that represents you in your own individuality. How to impress this individuality on all your advertisements must be left to yourself. It can be done by certain phrases, by certain catch-words with which every circular begins; by pictures of a certain kind, or by many other designs and methods.

It may be worth while to tell you, at this occasion, the story of the success of the manufacturer of one of the best known talcum powders. He was a druggist of moderate means in Newark, New Jersey. I knew him well. At a meeting of the New Jersey Pharmaceutical Association we sat together at Atlantic City, near the beach. I noticed that he was discouraged and despondent. I asked him the cause.

"I will tell you," he said. "I am discouraged because I despair of success. My case seems hopeless. I started this talcum powder expecting great things from it. I mortgaged my store; I mortgaged my house; I borrowed money from all my friends; I know no one of whom I could ask for more. The money is all gone; it disappeared as if swallowed up by a rat-hole. I am at the end of my resources." There was a long pause. Suddenly he jumped up, excited, full of life. "I got it! I got it!" he exclaimed. "I know where I made my mistake." I looked at him in surprise. "You see that," he said, pointing to a fence not far from us. There was on that fence an advertisement of chewing gum, consisting of a long row of heads of the manufacturer; the first one very large, the others gradually becoming smaller. It is a well-known advertisement that everybody has been. "That row of heads," said my friend, "teaches me what I must do. I must be personal in my advertisements; I must put my individuality into them. I must put before the public something by which they will remember me and my talcum powder." From that day he changed his advertisements, on the tin cans of his talcum as well as on the fences along the highways. Where there had been the figure of a laughing baby, he put his own face, and it was reproduced on thousands of fences and in thousands of journals all over the United States. The sale of the talcum increased from that day and reached enormous proportions. This man discovered the secret of a good advertisement: Put your individuality into it in whatever way you choose.

As a proof of the correctness of this statement, I will show you some of my own advertisements [1] that I used to great advantage when unexpected and violent competition threatened to overcome me. You will notice, these advertisements consist of a small figure with a large head, the latter always being my own photograph, and the figure always represented something seasonable—a base-ball player, the cook, a man in a canoe, a bicycle rider, a man in an automobile, a baby, a skater, a policeman, and so on. From this figure the key to the advertisement was taken, and seasonable articles advertised to the public. The circulars—the paper for which was always of the same color—were distributed every Sunday by the newsdealers in my neighborhood, with the Sunday papers, about 2500 every Sunday. The results were marvellous, and the advertisement so pleasing to the public that a great many of my customers kept a full set of them and often asked me for additional copies.

In presenting these advertisements to you I do not wish to say that this is the only, or even the proper, way of advertising your business. You must follow, in this respect, your own inclination and be guided by local conditions. The point that I wish to emphasize is this: If you adopt advertising as a means of improving and increasing your business, you must not do it in a haphazard way. Have a fixed object in view. Lay out a plan for a whole year. Follow it up strictly and persistently. Do not be discouraged by seeming failures, and, above all, put all your efforts and all your individuality into this work.

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[1] The author accompanied the paper by a series of circulars he had successfully employed, embodying the idea of individualizing the advertisement.

SCIENTIFIC SECTION

RENAL FUNCTIONATION: THE PHENOLSULPHONEPHTHALEIN TEST.*

BY H. A. B. DUNNING.

Something positively non-toxic, non-irritating, rapidly and largely eliminated, quickly and easily applied; something that would give reasonably accurate showings, in the hands of the average clinician, that might be used as a renal functional test, had been anticipated for a long time and with considerable impatience by the careful surgeon and the painstaking practitioner of medicine. Various processes and substances had been tried and found more or less useful; were found to have advantages for some more specific determination, but wanting and inefficient in others, while all failed in fitness for very general application.

Now, after a world-wide investigation and trial of more than three years, it is almost universally conceded by broad-minded medical men that, for ascertaining the eliminating power of the two kidneys or the special ability of either kidney, the ideal test is closely approached by phenolsulphonephthalein.

This chemical, phenolsulphonephthalein, was first produced by Dr. Ira Remsen; later, in 1898, it was further investigated and described by one of his students, Michael Druck Sohon (see American Chemical Journal, vol. 20, No. 4, page 263), as:

> A bright red crystalline powder, somewhat soluble in water, more so in alcohol, from which it was precipitated by ether as a yellowish-red crystalline powder, which on removal from the liquor instantly gave up ether, and solidified to a dark mass, which was apparently the same material.
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> The dilute alkaline solution is somewhat purer red than that of phenolphthalein; the more strongly alkaline solutions are purple. It is about as sensitive to alkalies and acids as phenolphthalein. The color does not disappear as readily on heating, and it might be used as an indicator with ammonia.

In a preliminary report, by the Council on Pharmacy and Chemistry, American Medical Association (see The Journal, vol. lxii, No. 4, page 298), it is described as follows:

> Phenolsulphonephthalein is a bright red crystalline powder, slightly soluble in water and in alcohol with formation of a yellow solution; it is insoluble in ether. It is soluble in dilute alkalies with formation of a solution whose color is a purer red than alkaline phenolphthalein, while a strongly alkaline solution is purple. In solution it is sensitive to carbonic acid just as phenolphthalein is. It is readily soluble in sodium carbonate solution, and shows stronger acid properties than any of the related phthaleins. The substance at first has a slightly sweetish taste which changes to a disagreeable bitter taste.

The substance is marketed in the solution of its monosodium salt only; the solution (6 mg. to 1 Cc.), biologically standardized and sterile, is contained in hermetically-sealed ampoules, each ampoule holding more than enough for a test.

It was Dr. John J. Abel and his associate, Dr. L. G. Rowntree, while investigating the pharmacodynamics of all the phthaleins, some years after the publication by

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* Presented to Scientific Section, A. Ph. A., San Francisco meeting.

Sohon, who discovered the remarkable manner in which normal kidneys disposed of this compound—phenolsulphonephthalein—fully 85 percent of an injected quantity being thrown off through renal functionation within two or three hours.

Doctors Abel and Rowntree, of the Pharmacological Department of the Johns Hopkins Medical School, further examined the substance pharmacologically and found it to be even less toxic than sodium chloride. See The Journal of Pharmacology and Experimental Therapeutics, vol. 1, No. 6, page 595, from which is quoted as follows:

> The pharmacology of this substance has been studied by Abel and Rowntree, who have shown that properly-prepared solutions of the sodium salt can be injected under the skin without the slightest evidence of an irritant action; that the drug can be administered by mouth without untoward effects of any kind; that the administration of the drug in 0.1-gramme doses or less by mouth is followed by its appearance in the urine in one to one and a half hours; that the subcutaneous administration is followed by the appearance of the drug in the urine within ten minutes. The method of its excretion in the bile and urine and its absorption from the bile in the intestine was also investigated. Following the subcutaneous injection of 1 gramme, the drug appears in the bile in high concentration in one to two hours. It is then reabsorbed by all parts of the intestines, and only a trace, even after these large doses, can be found in the stool.
>
> The effect of 1-gramme doses of the drug upon the kidneys of dogs was also studied, and in no case was albumin, sugar, casts, or other abnormalities found. It was found, however, that large doses given intravenously to rabbits exerted a mild diuretic action.
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> Further investigation yields additional evidence of the non-toxicity of this substance. One of us (R.) has tested the effect of this preparation on rats infected with various strains of trypanosomes. In one instance 0.3 gramme was administered to a 200-gramme rat and repeated without any untoward effect.
>
> A small kitten, weight 650 grammes, was given 0.115 gramme of phenolsulphonephthalein subcutaneously. The stool showed only a trace of the drug, while the urine was red for sixty to seventy-two hours following the injection. No toxic symptoms were present.

This reference is from the published study of Drs. L. G. Rowntree and J. T. Geraghty, to whom is due the credit for first using phenolsulphonephthalein as a renal test and for first making practical and successful applications of it to clinical diagnosis. These investigators acknowledge assistance in their efforts to Doctors Abel, Young, Slagle, Barker, Thayer, McCrae, Hobelman, Merrill, Kelly, and Richardson, also to H. A. Brown Dunning, Phar.D., who made and supplied most of the phenolsulphonephthalein used in their investigations and who, through a long series of experiments, succeeded in modifying the original methods of producing phenolsulphonephthalein and, still more important, originated a method of purification which yields this substance, pure to a degree entirely satisfactory to the originators of the test.

REMARKS ON PHENOLSULPHONEPHTHALEIN.

Phenolsulphonephthalein was first prepared by Ira Remsen and Sohon by heating in hot-air bath at 130° C. for 24 hours orthosulphobenzoic acid anhydride with twice the molecular equivalent of phenol. The resulting resinous mass is thoroughly disintegrated by boiling water until free from phenol. The substance is then collected upon a filter and thoroughly washed and, finally, is transferred to porous plates and dried, or it may be dried in a current of warm air on filter-paper. While the mass has a beautiful deep-green fluorescence, which presents a blood-red streak when the surface is broken, the washed and dried powder varies in color from a beautiful vermilion red to a brownish red, depending upon its fineness. The substance is soluble in cold water to a slight degree only, yielding a deep-yellow solution, which becomes Bordeaux red upon the addition of one molecule of sodium hydroxide, giving a beautiful purple with excess of the alkali. Similar to phenolphthalein, the aqueous solution of the sodium salt is effected by carbonic acid, but the color of the dilute solution seems to be unaltered, if kept in a tightly-stoppered vessel. The substance is soluble in alcohol, but insoluble in ether. The starting-point of Remsen and Sohon was commercial saccharin, containing about 60 percent benzoic sulphinide. It may be of interest, at this point, to state that commercial saccharin, at the present time, is practically pure benzoic sulphinide.

Following the method of Remsen and Saunders, the saccharin in aqueous mixture was boiled with hydrochloric acid until solution of the benzoic sulphinide was effected and converted into the acid ammonium salt of orthosulphobenzoic acid, which is evidenced by the disappearance of the sweet saccharin taste. The undissolved matter is parasulphaminebenzoic acid, from which the acid ammonium salt in solution is separated by filtration, subsequent to concentration and cooling of the mixture. The acid ammonium salt was decomposed with potassium hydroxide in hot concentrated solution, thereby forming the potassium salt. The acid potassium salt was precipitated from the cool solution by the addition of concentrated hydrochloric acid. The washed and dried potassium salt was then treated with phosphorus pentachloride and the cool mass extracted with benzene, which brings into solution the anhydride of orthosulphobenzoic acid.

The method adopted by Slagle, who prepared the "phthalein" at the Johns Hopkins Medical School for experimental pharmacological purposes, is, in a large measure, selected from the work of Remsen and Sohon, Remsen and Saunders, and Remsen and Dohme. Slagle started with saccharin and produced the acid ammonium salt of orthosulphobenzoic acid in the way mentioned above, then treated the acid ammonium salt with phosphorus pentachloride, producing the chloride of the acid, which is a yellow, oily liquid of high specific gravity, possessing a peculiar, sweetish, unpleasant mouse-like odor. After thorough washing, the chloride is boiled with water, which decomposes it, with the formation of orthosulphobenzoic acid, which, upon evaporating to dryness and heating to remove hydrochloric acid, is mixed with phosphorus pentoxide and distilled to obtain the anhydride of the acid, which distils as an oily liquid at a high temperature, quickly congealing to a white, opaque, crystalline mass in the receiver. The value of the substance for use in medicine was determined, under the direction of Dr. John J. Abel, by Dr. L. G. Rowntree, of the Pharmacological Department of the Johns Hopkins Medical School, while the clinical work was done by Dr. J. T. Geraghty, of the hospital staff. These investigators learned, after extensive experimentation, that when "phthalein" is injected subcutaneously the entire amount is excreted by the normal kidneys in a limited time: from 40 percent to 60 percent during the first hour after its first appearance in the urine, which requires about ten minutes, and about 60 percent to 80 percent within two hours. The essential features of the test are as follows:

One Cc. of the solution containing 6 milligrammes of "phthalein," as a monosodium salt, is injected into the arm or the buttocks; after about ten minutes, the "phthalein" may be detected by catheterizing and passing the urine into a test-tube containing solution of sodium hydroxide, thereafter for one hour the entire amount of urine excreted is collected. The present procedure is to collect excreted urine for one hour and ten minutes from time of giving injection. Sufficient sodium hydroxide solution is added to make alkaline, and the whole is diluted to 1000 cubic centimetres. The quantity of "phthalein" eliminated is determined, colorimetrically, by comparing the specimen collected, as above stated, with a standard solution of "phthalein" prepared by diluting 1 Cc. of "phthalein" solution containing 6 milligrammes to 1000 Cc. with water made alkaline. This comparison is most accurately made through the use of a colorimeter. The value of the test depends upon the following facts: 40 percent to 60 percent of "phthalein" injected is eliminated by the normal kidneys within one hour, irrespective of the quantity of urine excreted. If the amount of the substance eliminated is very low, 5 percent to 30 percent, then the kidneys are not functionating properly.

This diagnostic test of renal efficiency has attracted widespread interest, not only in this country, but in England, France, Germany, Japan, and Australia.

LABORATORY OF HYNSON, WESTCOTT & COMPANY, Baltimore, Md.

PROGRESS IN THE CULTIVATION OF MEDICINAL PLANTS.*

BY HENRY KRAEMER, PH.D.

For the past fifteen years I have supported the theory that the cultivation of medicinal plants in the United States was not only practicable but essential for the scientific development of manufacturing pharmacy. As long ago as 1902 Doctor True wrote me as follows:

"This matter of the domestication and cultivation of our native drug plants is one that is interesting me a great deal and seems likely to take some of my time for the immediate future. I hope I may be able to trouble you often in connection with this attempt to open up a new line of agricultural work. I have no doubt that the right man will be able to get rich by cultivating drugs, if we can find methods of handling the articles so as to produce a first-class product."

During these years the work has been progressing very slowly and yet with very great satisfaction. Many students of botany have had their small gardens in which they grew a limited number of plants. I well recall that the late Professor John M. Maisch had a small garden in West Philadelphia, and so have others had these gardens. My first work was done in a side yard. In 1907, when the Foods and Drugs Laboratory of the Philadelphia College of Pharmacy was built, a lattice platform was laid on the top of the roof and we built a roof garden. We constructed our boxes, purchased about ten cart-loads of good soil, and went ahead planting trees, shrubs, and vines. We arranged beds with lattice for those plants that required shade. Out of an old zinc-lined trough we constructed a Jersey bog, in which iris, cat-tails, drosera, sarracenias were planted and bloomed. In the fall of 1909 the college erected a good green-house. During these years we have had under observation over 300 different species of plants. Most of these plants have been used in connection with investigations of crude drugs. In addition, the work has given us valuable data in regard to growing plants by means of seeds and cuttings, the drying and curing of them, and, in a few instances, of extracting their constituents.

It is not so much of my own experiments that I want to talk about to-night as it is the progress of the work done by others. I desire to refer to the splendid equipment of green-houses and grounds by Prof. E. L. Newcomb at the University of Minnesota. Professor Newcomb was associated with me when we began our work at the Philadelphia College of Pharmacy, and I look forward to the time when every college of pharmacy will have gardens of its own. I also desire to commend Professor Newcomb's attitude in making the products of the gardens useful to the pharmacists of his state. He is, as you know, supplying the crude drugs which he raises to the pharmacists, and I understand that there is a greater demand for them than he can supply.

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* Read before the Philadelphia Branch, A. Ph. A., December 13, 1915.

In addition, several of our large manufacturing houses have drug farms and are harvesting crops on the same scale as the farmer. In our own vicinity, H. K. Mulford Company is growing on an extensive scale belladonna, digitalis, hydrastis, and cannabis, and is considering the growing of a large number of other medicinal plants. I will show you by means of lantern slides something of the work which is done by Burroughs, Wellcome & Co. at their farm which borders the little village of Darent, near Dartford, England; also the views of the farms of Eli Lilly & Co., near Indianapolis, Ind.

There is very great interest in the subject of cultivation of medicinal plants; unfortunately most of the inquiries we receive do not reveal genuine interest. They are usually from farmers who deplore the low prices they are receiving for their farm products, or from pharmacists who are dissatisfied with the profits of the drug business. To all such persons I feel rather conservative in encouraging them to take up this work, as it will require patient labor and incessant toil in order to secure any results. If one, however, has something of the pioneer instinct in him, and is capable of putting any product on the market, he ought to succeed.

Of course, one needs to have some practical experience in the growing of plants, but this can all be acquired through the practical courses at the state experimental stations, although nothing will take the place of actual practical work. In my new book on "Applied and Economic Botany" I have devoted a chapter to the "Cultivation of Medicinal Plants." This gives very valuable information for the beginner. Dr. W. W. Stockberger has given in a recent Farmers' Bulletin some interesting facts on drug plants under cultivation. The most comprehensive article on the literature of the cultivation of medicinal plants is given by Dr. Frederick Kilmer in his paper read before the National Association of Manufacturers of Medicinal Products, Waldorf-Astoria Hotel, New York City, February 8, 1915.

In conjunction with the large number of lantern slides there were shown between forty and fifty drug specimens which had been grown in the United States during the past summer. The principal reason for the engaging in the cultivation of medicinal plants is in order to establish a uniformity in the quality of vegetable drugs. Of course, improvements can be obtained, and the work already accomplished in this country justifies the prediction that, as in farm and economic products, the grower of drug plants can successfully meet these questions. The next year ought to witness a material increase both in the number of crops grown and their yield. If there are any agreements or treaties between the United States and foreign countries which would seem to restrict competition of drugs produced in this country with those imported, it is very desirable that everything be done to place the United States on an independent basis. The lesson of the past two years should cause us to seriously consider the necessity of protecting our own sick and not require them to pay exorbitant prices for the lack of supply of remedial agents.

CONTRIBUTED AND SELECTED

AERIAL OR GASEOUS DISINFECTION.*

BY SEWARD W. WILLIAMS, PH.C., F.C.S.†

3. *Do You Think the Conclusions Reached by Mr. Adams in the Ladies' Home Journal for March (See Quotation in Enclosed Paper) Justified?*

[This was the quotation:

I am assuming in what follows, only two points: That you are an adult, and a non-consumptive at present. On that hypothesis:

1. You have had tuberculosis.
2. You have cured yourself of it.
3. In the process of curing yourself you have so fortified your body against it that you are safe against "catching" the disease from any other person.
4. If you now become a consumptive it will be through a relapse and *by your own fault.*]

ARIZONA.—[This question not answered.]

ARKANSAS.—Dr. C. W. Garrison: No.

DISTRICT OF COLUMBIA.—Dr. W. C. Woodward: Mr. Adams is in a position to speak dogmatically with respect to this matter. I am not.

FLORIDA.—Dr. J. Y. Porter: I cannot wholly agree with Mr. Adams's conclusions that tuberculosis is never contracted by adults through contact with persons suffering with the disease. I believe that such infection does occur through the moist sputum, in which the bacillus is kept in a moist and active state. I very much doubt the possibility of transmission by dried sputum.

IDAHO.—Dr. W. R. Hamilton: I do not know. My experience in fumigation has been rather limited, but, until I receive more definite information, much prefer to continue using formaldehyde.

ILLINOIS CENTRAL R. R.—Dr. A. E. Campbell: No, I do not.

INDIANA.—Dr. J. N. Hurty: I think the conclusion reached by Mr. Adams, Dr. Chapin, Dr. Goldwater and other close observers will likely be found correct.

KANSAS.—Dr. O. D. Walker: Formaldehyde as it is generally used as a disinfectant is of little real value. Under proper treatment it is quite effectual.

MAINE.—Dr. A. G. Young: No, I do not.

MARYLAND.—Dr. J. S. Fulton: I do not regard Mr. Adams's statement as a "conclusion." It is simply a rather vivid statement; and for a certain large fraction of the adult population, it is 75 percent true.

MISSOURI.—Dr. G. B. Schultz: Yes.

NEBRASKA.—Dr. E. A. Carr: No. (We should not cast ourselves overboard in mid-ocean until we see another boat in sight.)

NEVADA.—Dr. M. F. Boyd: I consider that Mr. Adams's statements, *under the conditions he names,* and in the light of our present knowledge, to be justifiable and conservative.

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* Read before Chicago Branch of the American Pharmaceutical Association, November 16, 1915. Continued from page 194, February issue.

† Scientific Department, Bauer & Black, Chicago.

New York.—Dr. F. M. Meader: Yes.

Dr. E. H. Porter: The conclusion is not yet justifiable and should not be put forth to the public.

Dr. J. J. O'Connell: I have not read the article by Mr. Samuel Hopkins Adams to which you refer. I do not see that his four conclusions logically follow his two assumptions. In other words, it does not seem to me to be a necessary sequence of the fact that you are an adult non-consumptive at present, that you formerly had tuberculosis and have cured yourself of it, and in curing yourself have so fortified your body as to make it safe against reinfection. Of course if you had tuberculosis and have cured yourself, that settles it. You are cured and must be reinfected in order to have the disease a second time. I think it highly probable, however, that a retardation of the growth of the causative factor by a removal of the patient from conditions favorable to such growth into conditions unfavorable to such growth has frequently been mistaken for a complete cure, and that in such cases the organisms are dormant, but not dead, and await only a restoration to conditions favorable to them to renew their malignant activity.

Dr. M. C. Schroeder: No, they are not justified; while reasonable care and personal hygiene may protect a consumptive individual from reinfection, he is still subject to sources of infection which may be beyond his control.

New Mexico.—Dr. L. G. Rice: No.

North Carolina.—Dr. J. H. Way: Hardly; while the degree of tuberculophobia induced has been excessive, and doing positive harm in some places, yet, I would not wholly have people feel that they may associate intimately with careless spitting consumptives without taking precautions.

Ohio.—Dr. E. F. McCampbell: The quotation from Mr. Adams's article in the Ladies' Home Journal is to the effect that adults who are non-consumptive have had the disease and have been cured of it. Any further infection must come from the person's own body and not from some other person. In other words, will be a relapse. This I believe is generally true.

Oregon.—Dr. C. S. White: No. I question the authenticity as to whether or not we have all had tuberculosis.

Pennsylvania.—J. P. Remington, Ph.M., F.C.S., Chairman Committee of Revision U. S. Pharmacopœia; Dean of American Pharmacy:

[On the way to the San Francisco meeting, while chatting with Professor Remington, I asked his opinion on this question, and the experience he related showed so positively that an adult *may* contract tuberculosis from one ill with that disease that I asked to be favored with a written account. This he has very kindly supplied, as follows:]

Charles Frederick Zeller, Ph.G., died April 7, 1886, from tuberculosis. The history of this case attracted my attention to the communicability of the tuberculosis germ by oral infection. Professor Zeller was my assistant in pharmacy for ten years and during this time was the picture of health. He was a young man of strict integrity, vigorous in health, and a physique which enabled him to rise early in the morning and work in a drug store until eleven o'clock at night. He was strictly temperate, using neither alcohol nor tobacco, very fond of his parents, and devoted to his sister. This sister in 1880 nursed an intimate girl friend through a fatal illness, which was termed "galloping consumption."

The idea of the communicability of tuberculosis at that time was not held by physicians. Frederick's sister frequently kissed her friend, particularly when she left her in the evening to return to her home. Miss Zeller was in splendid health and there was no history of tuberculosis in the father and mother or ancestors.

Shortly after the death of the friend of Miss Zeller, symptoms of tuberculosis appeared and Miss Zeller died in a few months. Frederick was of an affectionate disposition and he often kissed his sister. Although everything was done by the well-to-do parents to save their daughter by employing the best physicians and specialists, she died within a year. Shortly after the sister's death, Frederick manifested symptoms and the progress of the disease in his case was very rapid, and on April 7, 1886, after a violent hemorrhage from the lungs, this strong, healthy man passed away.

If my recollection serves me, the sister was about four years younger than Professor Zeller, who was twenty-eight years of age when he died.

He was a man who ridiculed the complaints of his friends about trifling ailments and accused them of having vivid imaginations and a desire to obtain sympathy. He was not subject to ordinary colds and believed that the way to get rid of these ailments was to pay no attention to them. He undoubtedly reasoned that when he himself had a cold the best way to proceed was to ignore it and his splendid vitality always prevailed and his rosy cheeks and cheerful disposition gave one the impression of health far beyond the average. Barely six months elapsed from the time of infection until the time of his death.

These events following each other so rapidly convinced the writer that tuberculosis, like so many diseases, was produced by the presence of a germ. Soon after Professor Zeller's death, at a meeting of the Philadelphia County Medical Society, the writer stated the case, giving facts and dates; but the impression on the majority of physicians present was very slight, and one noted physician of Philadelphia ridiculed the idea of communicability and dismissed the subject with the common story of it being simply a coincidence. Three years afterwards, this same physician informed the writer that he was convinced from other cases that tuberculosis was due to a germ. Since then, of course, the germ has been isolated and we are now in a fair way to stamp out the ravages of the "great white plague." (Signed) JOSEPH P. REMINGTON.

Dr. S. S. Cohen: It is partially true and partially false; as a rule recovery from tuberculosis does not establish immunity against infection. On the other hand, the life which prevents tuberculosis and brings about recovery from tuberculosis must be continued to prevent relapse. [Answering Question No. 3.]

SOUTH DAKOTA.—Dr. D. L. Rundlett: In a general way, yes, as few of us have not had a mild infection at some time but our natural immunity was such that the condition could not progress. In other words, we cured the disease ourselves, as Mr. Adams states. These facts are borne out in that we seldom see tuberculosis in those advanced in years. Of course, there is a possibility that people who did not understand this fully might be made careless of the danger.

TENNESSEE.—Dr. Ambrose McCoy: No. Not with our present knowledge.

UTAH.—Dr. T. B. Beatty: Have not seen article.

WISCONSIN.—Dr. C. A. Harper: I am not in accord with the statement of Mr. Adams in the Ladies' Home Journal for March. I do not believe that all young adults have had tuberculosis in mild or any other form; that there has been some infection in many of the apparently well young adults, I do not deny. Hence his first hypothesis in my judgment is absolutely incorrect. Of course, those adults who are now apparently well and have had tuberculosis in a mild form in some stages of their existence are self-cured. In the process of curing one's self that individual is not sufficiently fortified against catching the disease from any other person. Catching tuberculosis is frequently a result of more or less repeated exposures to the infectious agent. This is abundantly exemplified in active observation that those intimately associated with a tubercular patient who is somewhat careless very frequently contract the disease, while those who are exposed to the same person only occasionally and at intervals under the same conditions never contract the disease. Everyone immunizing himself by having a mild type of tuberculosis is self-cured. Undoubtedly immunizing could be very thoroughly established by the inoculation of tuberculin over certain periods of time.

Furthermore, the hypothesis of Mr. Adams does not hold true in any of the other communicable diseases; pneumonia is prone to repeat itself; diphtheria likewise; scarlet fever may and occasionally smallpox; measles frequently and typhoid occasionally. There is nothing in the immunizing process of tuberculosis that is observed in other communicable diseases. One attack of these diseases does not immunize entirely.

Furthermore, there are homes where there are large families one member of which is afflicted with tuberculosis, all of the other members more or less exposed and undoubtedly infected for many weeks and months. Then a period of years will lapse and members of this family through marriage or change of residence would become exposed again to a tubercular person and as a result of exposure a second time would become thoroughly infected and seriously ill from the disease. It is conclusive in my mind that the danger of active tuberculosis is much greater at any time of life in those who are exposed to the infection from without than by a recurrence of latent infection. To me Mr. Adams's hypothesis is especially unsound and a dangerous principle to establish in the crusade against tuberculosis.

In a dairy herd in which I am interested over thirty animals have been tested repeatedly and found free from tuberculosis in every respect over a series of years. An additional animal was purchased with a certificate and tagged indicating freedom from tuberculosis and put with this herd. Facts were later discovered showing that this animal had been tested, given a free bill, when the test showed tuberculosis. Immediately the whole herd with which this infected animal had been placed was re-tested and seven animals reacted. This to me emphasizes the danger of an infected environment beyond all reasonable doubt.

WYOMING.—Dr. H. T. Harris: Not altogether.

[Summary for Number 3: Favorable to Mr. Adams's views, 5; partly favorable, 3; unfavorable, 12; doubtful, 5. Doctor Carr's parenthetical observation seems to the point.]

4. *Even if This New Theory of Tuberculosis Were Generally Accepted, Would It Not Point to the Necessity of Fumigation After Pulmonary Phthisis to Protect Children?*

ARIZONA.—Dr. R. N. Looney: We should always fumigate after pulmonary phthisis.

ARKANSAS.—Dr. C. W. Garrison: Yes.

DISTRICT OF COLUMBIA.—Dr. W. C. Woodward: The acceptance of Mr. Adams's dicta with respect to the communicability of tuberculosis does not lead necessarily to the abandoning of *disinfection.* Whether there shall or shall not be *fumigation* depends upon circumstances. (See answer to question 1.)

FLORIDA.—Dr. J. Y. Porter: Thorough fumigation would, I believe, be impracticable in nine-tenths of the cases, and would be practically, if not altogether, useless in all.

IDAHO.—Dr. W. R. Hamilton: I should feel so.

ILLINOIS CENTRAL R. R.—Dr. A. E. Campbell: I do most emphatically. Tuberculosis will never be reduced until the disinfection of all rentable houses occupied by this class be made compulsory by Municipal Health Boards.

INDIANA.—Dr. J. N. Hurty: If the "new theory" of tuberculosis were generally accepted, I would nevertheless favor extreme cleanliness, which means sanitary care of the sputum, etc., and would not object to disinfection if for no other reason than its psychological effect. Formaldehyde disinfection is not efficient against tuberculosis infection. The acidfast bacteria are not killed by gaseous formaldehyde.

KANSAS.—Dr. O. D. Walker: Fumigation will do no harm and may do much good; hence fumigate.

MAINE.—Dr. A. G. Young: Too many histories of tuberculosis in families, hitherto immune, after they have moved into tuberculosis houses.

MARYLAND.—Dr. J. S. Fulton: The view expressed by Mr. Adams is in no respect inconsistent with the practice of *disinfection* of tubercular sputum of contaminated premises of the tuberculous.

MINNESOTA.—Dr. H. M. Bracken: No.

MISSOURI.—Dr. G. B. Schultz: Yes.

NEBRASKA.—Dr. E. A. Carr: Yes, *to be sure.*

NEVADA.—Dr. M. F. Boyd: Terminal fumigation at the end of pulmonary tuberculosis for the protection of any person, and in the absence of more suitable and necessary prophylactic measures can have little justification.

NEW YORK.—Dr. F. M. Meader: No; because formaldehyde gas does not kill tubercle bacilli.

Dr. E. H. Porter: Possibly.

Dr. J. J. O'Connell: I am not very clear in my mind as to what the new theory of tuberculosis is, but it does not seem to me that the theories of Mr. Adams with regard to it have any real relationship to the question of fumigation.

Dr. M. C. Schroeder: Homes in which pulmonary tuberculosis occurs, especially where the lesions are breaking down, should be subject to routine weekly or monthly disinfection which should include the washing of walls, bedsteads, mattresses, blankets and the steam sterilization of bed and personal linen.

NEW MEXICO.—Dr. L. G. Rice: I believe in the theory, tuberculosis practically always contracted in infancy, all right, but this does not change my opinion on fumigation after tuberculosis.

NORTH CAROLINA.—Dr. J. H. Way: Fumigation after tuberculosis is, in my judgment, of little real value, though still advised. It does little good, and it may do harm in getting the attention of people away from real danger.

OHIO.—Dr. E. F. McCampbell: Yes, but it is most important to see that children are removed from an environment in which tuberculosis prevails.

ONTARIO (Canada).—Dr. J. W. S. McCullough: Fumigation advisable in tuberculosis quarters.

OREGON.—Dr. C. S. White: I believe renovation, scrubbing, boiling bedding, varnishing woodwork, etc., is better than fumigation.

PENNSYLVANIA.—[The writer has seen nothing to indicate that an exception is made, in the case of tuberculosis, to the general rule to fumigate with formaldehyde after communicable diseases.]

Dr. S. S. Cohen: Yes and no. The germ of tuberculosis does not remain long suspended in the air. Proper cleansing of walls and floor are necessary; also sunlight is necessary. Fumigation is of much less importance in this connection than after the exanthemata and diphtheria.

South Dakota.—Dr. D. L. Rundlett: Certainly yes. It's a well known fact that a tubercular patient is a safe one only as long as he protects his mouth by a cloth on coughing or sneezing, and expectorates into a receptacle which contains an antiseptic. The sputum [in street or on floor] is dangerous only as it dries out and becomes ground up in the dust on the floor of rooms or on streets, and is breathed in, or taken in on food.

Tennessee.—Dr. Ambrose McCoy: Yes.

Utah.—Dr. T. B. Beatty: Believe in fumigation after pulmonary tuberculosis.

Wisconsin.—Dr. C. A. Harper: Whatever the theory, the fumigation and cleaning of the home where there was a case of pulmonary tuberculosis should be invariably practised.

Wyoming.—Dr. H. T. Harris: Yes, by all means.

[As nearly as replies to number four can be classified, 17 may be called affirmative, 5 negative and 8 doubtful.]

5. *Have You, in Your Experience, Thoroughly Satisfied Yourself as to Whether or Not Communicable Diseases are Commonly Conveyed by Objects Handled by the Patient? In Other Words, What Rôle Do Fomites Play in Carrying Infection?*

Arizona.—Dr. R. N. Looney: Fomites play an important rôle in the spread of disease.

Arkansas.—Dr. C. W. Garrison: I believe fomites do not play as important a rôle in the transmission of disease as formerly supposed, except in drinking and eating utensils by direct contact.

District of Columbia.—Dr. Wm. C. Woodward: Exact channels of infection have not been satisfactorily worked out. Fomites, using the word as ordinarily understood, to mean woollen garments, etc., probably play a small part, if any, in the transmission of communicable diseases. If the word fomites can be used to cover such articles as cups, spoons, etc., then the part played by fomites is probably considerably greater.

Florida.—Dr. J. Y. Porter: In my opinion, fomites play very little, if any, part in the transmission of contagious or infectious diseases. I believe direct contact with the patient or his excretions to be the only factor worthy of serious consideration in any epidemic or contagious disease.

Idaho.—Dr. W. R. Hamilton: My belief is, that communicable diseases are contracted in this manner.

Illinois.—Dr. C. St. Clair Drake: In my opinion, contact with patient or objects handled by patient—sick or well carrier—is the only way disease is spread.

Illinois Central R. R.—Dr. A. E. Campbell: Yes, there are times when it looks that way, but we must state how often this is found and how often disease is traced to such a source. I would not favor a sweeping deduction.

Indiana.—Dr. J. N. Hurty: I am inclined to believe fomites play very little part in carrying infection.

Kansas.—Dr. O. D. Walker: A very common way of spreading contagious diseases.

Maine.—Dr. A. G. Young: A secondary rôle, but one not to be neglected.

Maryland.—Dr. J. S. Fulton: Inanimate materials are frequently instrumental in the conveyance of infectious diseases. With respect to some diseases, inanimate conveyors are more potent, and with respect to other diseases less potent, than animate carriers.

MINNESOTA.—Dr. H. M. Bracken: Not air borne.

MISSOURI.—Dr. G. B. Schultz: They frequently convey the infectious agent.

NEBRASKA.—Dr. E. A. Carr: School books, pencils, drinking cups, etc., are known to be carriers of disease; so I say fomites are dangerous.

NEVADA.—Dr. M. F. Boyd: Fomites, as the term is usually used, play a very insignificant rôle, if indeed any, in the transmission of the commoner infectious diseases. Objects directly passing from mouth to mouth, etc., are of considerable importance in disease transmission, but are not included in the generally accepted meaning of the term fomites.

NEW YORK.—Dr. F. M. Meader: A very minor part.

Dr. E. H. Porter: It would seem to be an important one.

Dr. J. J. O'Connell: Certain of the communicable diseases are undoubtedly conveyed on objects which have been handled by a patient. Our knowledge of the etiological factors is not adequate to warrant us in defining the rôle played by fomites. In pneumonia plague there is no doubt that the air sustains for a period minute globules which contain *B. pestis.* In clothing soiled with fecal matter certain organisms will survive for varying periods of time. In our laboratory we have recently conducted several experiments as to the viability of cholera germs in sea water and we find that in the greatly contaminated water of our harbor the vibrios will live for several weeks. As we have not identified as yet the pathogenic organisms of scarlet fever and measles and some of the other infections, it is not scientific to contend that these organisms will not live in clothing and in material other than animal tissue. There have been cases in my own experience as well as in the experience of most physicians with whom I have discussed this subject, where direct contact was most improbable if not impossible, and the infection was explicable only in the light of the fomite theory. I have not read in the published works of those who condemn this theory any explanation of infection in such cases which did not seem to me to be based upon the merest speculation. I believe there is great danger in the acceptance as authoritative of theories with regard to fumigation and isolation of cases of infectious diseases based upon conjectures which fly in the face of common experience.

Dr. M. C. Schroeder: Yes.

NEW MEXICO.—Dr. L. G. Rice: They are very often carried by objects but not always.

NORTH CAROLINA.—Dr. J. Howell Way: I do not, and do not think many people nowadays believe much in fomital infection. *Persons,* not things, are the manifest sources of disease.

OHIO.—Dr. E. F. McCampbell: I believe that fomites do play a part in spreading communicable disease, but that the infection does not persist long as fomites and that direct contact is a much more important means of transmission.

ONTARIO (Canada).—Dr. J. W. S. McCullough: Immediate handling of toys, etc., especially if placed in the mouth as children do, will in my opinion transmit disease.

OREGON.—Dr. C. S. White: With the exception of smallpox, perhaps comparatively little.

PENNSYLVANIA.—[Dr. Dixon does not answer this question specifically, but from the thorough method of fumigation he advises, the danger of infection from articles in a room which have been handled by the patient is recognized.]

Dr. S. S. Cohen: Yes, fomites play a very large rôle. I have no statistical studies and can only judge by observation. That fomites do not carry yellow fever is evident; they do convey scarlet fever, typhoid fever, cholera, etc.

South Dakota.—Dr. D. L. Rundlett: Yes. I have seen it conveyed in two or three cases of diphtheria by the means of toys.

Tennessee.—Dr. Ambrose McCoy: Doubtful as to exact rôle that fomites play in the transmission of disease.

Utah.—Dr. F. B. Beatty: No, but believe that the latter is secondary in importance.

Wisconsin.—Dr. C. A. Harper: My observance leads me to believe that communicable diseases are very commonly conveyed by objects handled by patients, or, in other words, fomites. Many striking examples of this have come in my experience.

Wyoming.—Dr. H. T. Harris: Fomites play a very important part in the spread of communicable diseases.

[Summary, Number 5: 15 regard fomites as of considerable importance in conveying infection; 7 consider them of secondary importance but not to be neglected, and 8 regard them as of comparatively little or no consequence.]

6. *How Is It That Some Sanitarians, Who Advise Burning Books Handled by a Person Having a Contagious Disease, Regard the Fomite Theory, as Applied to Things Generally, so Lightly That They Do Not Fumigate the Room and Its Contents?*

Arizona.—Dr. R. N. Looney: Don't know.

Arkansas.—Dr. C. W. Garrison: Simply an inconsistency.

District of Columbia.—Dr. Wm. C. Woodward: This is because of the radical difference between the relation of the patient to a book and the relation of a patient to a room.

Florida.—Dr. J. Y. Porter: This is merely one of the very frequent glaring inconsistencies indulged in by some of our health authorities. This attitude is very often, I think, the result of a spirit of compromise on the part of the health officer with the laity, who persist in clinging to the ancient and time-worn superstitions and theories regarding disease transmission.

Idaho.—Dr. W. R. Hamilton: I do not know.

Illinois.—Dr. C. St. Clair Drake: Fumigation does not sterilize.

Illinois Central R. R.—Dr. Campbell: Because the profession is divided on this subject.

Indiana.—Dr. J. N. Hurty: I do not know how it is that some sanitarians would advise burning books handled by a person having contagious disease but do not fumigate the room and its contents. Such sanitarians must, of course, answer the question.

Kansas.—Dr. O. D. Walker: I don't know.

Maine.—Dr. A. G. Young: It is beyond me.

Maryland.—Dr. J. S. Fulton: I do not have to explain anybody's inconsistencies, not even my own. I am not even prepared to say that the inconsistency assumed in this question is a real inconsistency.

Minnesota.—Dr. H. M. Bracken: The idea of destroying books is on the basis that one who has had an infectious disease and has transferred the infectious material from the mouth or other parts of the body to the hands, has left the infectious material on the books.

Missouri.—Dr. G. B. Schultz: Ignorance.

NEBRASKA.—Dr. E. A. Carr: Do not understand how they apologize to themselves.

NEVADA.—Dr. M. F. Boyd: I am not familiar with such standing taken by any sanitarian.

NEW YORK.—Dr. F. M. Meader: I do not think it necessary to burn books. If exposed recently to infectious material they may be fumigated.

Dr. E. H. Porter: Consistency is a jewel.

Dr. J. J. O'Connell: I am sure that I cannot answer your question because there seems to be no consistency in burning books handled by infectious disease patients and failing to disinfect the rooms occupied by these patients and the contents of such rooms.

Dr. M. C. Schroeder: It is human to err.

NEW MEXICO.—Dr. L. G. Rice: They simply want to be a little different from others; but are not practical.

NORTH CAROLINA.—Dr. J. Howell Way: I don't know. Should you find a real, sensible, consistent reason, let me know why.

OHIO.—Dr. E. F. McCampbell: I cannot explain the mental processes of the sanitarians mentioned.

ONTARIO (Canada).—Dr. J. W. S. McCullough: Fomites will not carry disease after any lengthened period.

OREGON.—Dr. C. S. White: I do not know.

PENNSYLVANIA.—[Dr. Dixon's explanation of the process used in Pennsylvania for fumigating the room and everything in it, appears on another page.]

Dr. S. S. Cohen: This is a question for psychiatrists.

SOUTH DAKOTA.—Dr. D. L. Rundlett: That is beyond the working of my brain to explain.

TENNESSEE.—Dr. Ambrose McCoy: That I cannot answer.

UTAH.—Dr. T. B. Beatty: Consider such practice inconsistent.

WISCONSIN.—Dr. C. A. Harper: In answer to your next question, beg to state that I am unable to reconcile myself to the proposition advanced that books should be burned after they have been exposed to contagious disease while other fomites are left unfumigated or not destroyed. The element of light is an important factor in the destruction of infective agencies and of course it is difficult to have the light invade the interior of a book to any considerable extent, while fomites in general are more exposed to light; but there is not sufficient difference in the two propositions to warrant the destruction of one and neglect of the other.

WYOMING.—Dr. H. T. Harris: Such an attitude as above outlined seems to me inconsistent.

[Nearly all seem to agree that the position referred to is inconsistent. Dr. Harper's very clearly stated views will doubtless be generally accepted.]

7. *Is Not the Viability of Pathogenic Bacteria So Influenced by Deficiency of Light and Fresh Air, and So Affected by Atmospheric Conditions in General, as to Make it Unwise to Rely Upon Disease Germs Shortly Succumbing to Conditions Practically Unattainable Without Fumigation?*

ARIZONA.—Dr. R. N. Looney: It is not safe to rely entirely on fresh air and sunlight.

ARKANSAS.—Dr. C. W. Garrison: Yes. We should be on the safe side and fumigate. In addition to fumigating, however, I hold that the free and intelligent use of soap and water is more important and efficacious in most instances, especially in those diseases classified as infectious.

District of Columbia.—Dr. Wm. C. Woodward: If the destruction of disease germs is practically unattainable without fumigation, then by all means fumigate; but the impracticability of destroying disease germs without fumigation must not be taken for granted. Fresh air, sunlight, mechanical cleaning, and the use of germicides in solution can commonly be relied upon.

Florida.—Dr. Porter: I do not so consider it. All of our knowledge of pathogenic bacteria shows clearly that they can live only a short time outside the body, except upon suitable media and under *most favorable* conditions; which conditions certainly do not exist, as a general rule, outside the bacteriological laboratory.

Idaho.—Dr. W. R. Hamilton: Yes.

Illinois.—Dr. C. St. Clair Drake: Yes.

Illinois Central R. R.—Dr. A. E. Campbell: This also is unsettled ground. We will fumigate all our cars as a precautionary measure for some time.

Indiana.—Dr. J. N. Hurty: I cannot answer this question satisfactorily to myself.

Kansas.—Dr. O. D. Walker: Yes.

Maryland.—Dr. J. S. Fulton: Practical disinfection must take all of these considerations into account, and as far as possible must be governed by them. The general assumption that the processes of nature would be greatly expedited by liberating quantities of formaldehyde gas may have some pleasant spiritual effect, but I am convinced that four-fifths of the time and material expended in my State on the liberation of formaldehyde gas is of no demonstrable value.

Minnesota.—Dr. H. M. Bracken: Yes, and under ordinary methods of disinfection, they will not be killed. They can be disposed of by a thorough housecleaning and a room into which it is not possible to admit the sunlight and air should not be considered as a place for future habitation under any conditions whatever. In fact, the existence of such rooms is a disgrace to any community.

Missouri.—Dr. G. B. Schultz: Yes.

Nebraska.—Dr. E. A. Carr: Yes.

Nevada.—Dr. M. F. Boyd: Your last question is too broad to permit of a brief concise reply. The organisms causing the commoner infectious diseases are all strict parasites, needing the conditions of warmth, moisture and darkness offered them by the body cavities for their life and multiplication, so that they readily succumb outside the body. The inability to survive in an extra-corporeal existence, due to factors of chilling, light and desiccation, achieves the same results, as contemplated by fumigation, and I believe probably as effectively.

New York.—Dr. F. M. Meader: Experience teaches that terminal fumigation does not limit the spread of communicable diseases as enumerated by our sanitary code.

Dr. E. H. Porter: It might be; but the value of fumigation unless supervised by an expert is often doubtful.

Dr. J. J. O'Connell: I do not think it wise to rely for safety solely upon the influence of light and fresh air on the viability of pathogenic bacteria.

Dr. M. S. Schroeder: Yes.

New Mexico.—Dr. L. G. Rice: Very unwise; use all precautions, but at the same time fumigate the best we know how.

North Carolina.—Dr. J. Howell Way: Possibly so.

Ohio.—Dr. E. F. McCampbell: Pathogenic bacteria differ in their resistance to such agents as light and drying, so it is impossible to make a general statement in answer to this question. As I have said, in answer to Question No. 1, the Ohio State Department of Health recommends terminal disinfection after certain diseases.

ONTARIO (Canada).—Dr. J. W. S. McCullough: I think it wise in light of present knowledge to fumigate.

OREGON.—Dr. C. S. White: Yes. This is especially true of the pus infections and smallpox.

PENNSYLVANIA.—Dr. S. G. Dixon: [As stated before, Dr. Dixon favors fumigation by the sodium dichromate, formalin and sulphuric acid method, suggested by Dr. George D. Rosengarten and developed by the Pennsylvania Board of Health.]

Dr. S. S. Cohen: Certainly.

SOUTH DAKOTA.—Dr. D. L. Rundlett: Yes. I feel very strongly that the process of fumigation should be carried out in a thorough manner, because while sunlight and fresh air will kill certain disease germs in a few moments, we have no way of knowing positively that these means have been able to penetrate certain nooks and corners, where a gas will penetrate.

TENNESSEE.—Dr. Ambrose McCoy: Cannot say.

UTAH.—Dr. T. B. Beatty: Yes.

WISCONSIN.—Dr. C. A. Harper: The viability of pathogenic bacteria differs very much. The degree of light and moisture also are important factors in the greater lessening of the viability of pathogenic bacteria. The degree of light and moisture differs very materially and cannot be relied upon as a sufficiently destructive factor to eliminate the necessity of fumigation. Such a procedure in my judgment is not verified in actual experience; on the other hand, the opposite condition is frequently observed.

I believe aerial disinfection an important factor. This also is important on the exposed surface with which the air comes in contact, and should the process be abolished the pocket-books of the medical profession would be greatly fattened.

WYOMING.—Dr. H. T. Harris: Most certainly.

[Twenty favor fumigation in addition to fresh air and sunshine; three emphasize value of germicidal solutions; three regard fumigation as of practically no value, and four are doubtful.]

FRESH AIR AND SUNSHINE.

Doctor Bracken's (Minnesota) reference to "proper conditions" and "sunlight," in his replies to questions 1 and 7, in some way reminded me of an article by Professor Lewis Jerome Johnson of Harvard University (page 498 of the American Public Health Journal, June, 1914) on the relation of methods, of taxation to the public health, and I wrote to General Gorgas and Dr. S. S. Cohen for expressions of their views on this phase of our subject. Here is letter from General Gorgas:

WAR DEPARTMENT,
Office of the Surgeon General.

WASHINGTON, July 3, 1915.

Mr. Seward W. Williams,
5415 Hyde Park Boulevard,
Chicago, Illinois.

Dear Mr. Williams:

Yours of June the twenty-eighth is acknowledged. I was very thoroughly impressed in my sanitary work with the evil effects upon the general health of the community which our present system of taxation causes. In both Cuba and Panama American occupation was at once followed by a large increase of wages. This was at once followed by very much better living conditions among the poorer classes, and, therefore, very much improved sanitary conditions. In considering these instances, I was impressed by the fact that low wages were due to there not being enough jobs to go around and that, therefore, the wage-earners were forced to bid against each other for these jobs. I can see that a tax on land values would tend to everywhere bring the large body of unused lands into use. This would furnish abundant jobs to the jobless and would prevent them from bidding against each other for employment, and, therefore, have a great tendency to raise wages. I feel confident that the most important sanitary measure that any community could adopt would be a taxation on land values. Very truly yours,

(Signed) W. C. Gorgas,
Surgeon General U. S. Army.

Dr. S. Solis Cohen, Philadelphia, Pa., under date of July 19, 1915, replies as follows:

I have been very much interested in your letter and its enclosure.

With the comment which you quote from an executive officer of the Board of Health as follows:

> Pathogenic germs will not be killed under ordinary methods of disinfection. They can be disposed of by a thorough house-cleaning; and a room into which it is not possible to admit sunlight and fresh air should not be considered as a place for future habitation under any conditions whatever. In fact, the existence of such rooms is a disgrace to any community—

I must express considerable sympathy. While I advocate fumigation, I am not at all sure that it succeeds in killing all pathogenic germs. It is, however, much better than nothing. It does, judging from practical results, diminish considerably the danger of infection, probably by killing a certain proportion of the pathogenic bacteria and diminishing the virulence or viability of others. Thus, it is a precaution that we cannot afford to neglect, however imperfect it may be.

Nevertheless, we should not allow ourselves to be misled into an unwise dependence upon an acknowledgedly imperfect measure. Fresh air and sunlight are necessities of life; and just in the proportion that they are beneficial to man they are harmful to his microscopic enemies. I have long been in the habit of quoting Graves of Dublin, who said, three-quarters of a century ago: "It is important to know how to make a man phthisical, as by pursuing an opposite line of conduct we will be able to prevent it." Graves had studied phthisis as it appeared in the Irish peasants and town laborers. He had found that it was the result of dirt and dampness and darkness and starvation; that those who were well fed and well housed, to whom water and air and sunlight were easily accessible, did not succumb.

This has been the invariable experience of all those who have studied the problem of tuberculosis. The tubercle bacillus is harmless against normal human beings under normal conditions. The organism contains within itself powers of defense and resistance more than sufficient to overcome infection, and it is only when these powers have become enfeebled through privation, depression or excess, that tuberculosis can find lodgement within the body. Hence, it is, also, that while Ireland was the great field for tuberculosis in the time of Graves, on account of the poverty and the wretched housing conditions there prevailing, New York City has become in our day pre-eminently the field of tuberculosis, on account of the poverty and the wretched housing conditions there prevailing.

More than thirty years ago I pointed out that tuberculosis was no longer a medical problem, but pre-eminently one for the sociologist, and especially one for the statesman. Originating in the hovel, it may, under certain conditions, spread to the palace, visiting, as I then said, "the miseries of Lazarus upon the children of Dives." Though it prevails chiefly among the poor, the rich are not immune, and while the resistance of the poor breaks down because of their lack of food, their lack of rest, their lack of fresh air and of sunshine, of opportunities for personal cleanliness and for innocent enjoyment, it may break down among the very rich from the opposite causes—the exhaustion by the victims themselves or by their parents, of their natural protection—through lives of extravagance and idleness, or physical and spiritual dissipation.

Hence, considering both extremes, the problem is one of economics—on the one hand to prevent the accumulation of unearned fortunes as now permitted by unwise laws, and on the other hand to secure a proper distribution of the wealth produced by conjoined labor and capital among the masses of producers so that they shall be enabled to provide for their wants without excessive hours of labor, and shall be enabled both to work and to live under sanitary conditions both as regards the body and as regards the mind. The fear of poverty —the constant anxiety lest one "get out of work" with all that this implies—is a fertile cause of mental and physical depression reducing the resistance.

It is easier, however, to understand concrete examples than abstractions, and one concrete example may stand as a type of the whole series of conditions mentioned. The absence of air and sunlight from dwellings is owing to the necessity for crowding a large number of habitations into a small area; and this is purely an artificial, man-made, indeed, law-made, need. In other words, it is unnatural. In Great Britain and Ireland we have the miserable cottage of the laborer flanking the enormous estates, lawns, forests, grand preserves, and deer parks of the gentry. In New York City we have the tenements or the congested districts within a short distance of open country affording ample space for modest dwellings with healthful surroundings. Nay, on Manhattan Island itself there is space, if properly utilized. Both in the old country and in the new, our land laws are at fault. The remedy is obvious. It applies alike to village and town, to commercial, industrial, mining and agricultural settlements. It would alter factory conditions, mining conditions, housing conditions, for the rich and the poor alike.

It is simply this: At present we set a premium upon keeping land vacant, and fine those who improve and make use of their land. The vacant lot in the heart of the growing city is taxed lightly; when it is built upon, not only are the taxes upon the land itself increased, but we add to them the tax upon the building that has been erected, and whose erection has afforded employment to architect and to many classes of artisans. Enormous profits are pocketed with the unearned increment accruing to land held idle, while the farmer and the builder receive but a modest recompense for their labor and risk. The owner of idle land along a railroad demands a large sum from those who propose erecting a factory upon it which will employ many workers, increase the business of the railroad and help to build up the community wherein it is established. The factory owners, after expending large sums for the land, must also invest other large sums in buildings and machinery, and then pay taxes on the increased assessment of the land and upon the value of their plant. Since they risk their whole capital in the business, they are entitled to a fair profit, and when this has been deducted from what is left after the payment of interest upon the cost of ground and plant, added to taxes, the amount left for distribution among the workers is relatively small.

Change this, tax vacant land equally with adjoining land put to wise use, and remove taxes from the improvements made by the farmer, builder, manufacturer, miner, etc., and you will revolutionize not only industry, but health. Rents will fall, the profits of the farmer, the manufacturer and the merchant, the wages of the workman, will alike increase. In other words, labor, whether mental or physical, will receive its due reward; and legal ground-blackmail—which is what the holding of land out of use amounts to—will cease.

In particular, to come back to our text, over-crowding in unsanitary dwellings, will disappear; and the increased bodily resistance which will result from working under proper conditions and with wages that will afford to everyone good food and decent living, with his share of rest and recreation, will so simplify the problem of contagious diseases that perhaps fumigation may be dispensed with, and dependence placed upon the cleanliness and due provision of air and sunlight which will then be possible.

(Signed) SOLOMON SOLIS COHEN.

(*To be continued.*)

PHARMACOPŒIAL BOTANIC DRUGS OF THE TWENTIETH CENTURY.

BY E. N. GATHERCOAL.

The original purpose of preparing a list of botanical drugs that are included in the national pharmacopœias of the world was simply to obtain a check-list for use in the pharmacognosy museum. The list as here presented includes all of the drugs directly derived from plants described in any of the national pharmacopœias * that have been revised since 1900.

There are named in the list 550 pharmacopœial drugs. When it is considered that the pharmacopœias of nineteen countries have been consulted and that these represent the whole modern world, the number of drugs recognized in all, or nearly all, of these pharmacopœias is surprisingly large. Thus 37 of the total of 550 drugs are recognized in each of the pharmacopœias, 19 are included in all but one, 10 are included in all but two and 12 in all but three, while 136 are recognized in but one pharmacopœia and 94 in but two of them. These latter numbers would be smaller but that the new British Pharmacopœia and the Netherlands Pharmacopœia recognize a number of odd Indian and East Indian drugs used in those portions of the world. The drugs that are recognized in all the pharmacopœias are the following:

Anise, Belladonna Leaves, Benzoin, Bitter Orange Peel, Camphor, Cascara Bark, Castor Oil, Cinchona and Red Cinchona, Cloves, Copaiba, Croton Oil, Cubebs, Ergot, Fennel, Foxglove, Gentian, Goldenseal, Gum Arabic, Henbane, Ipecac, Jalap, Male Fern, Nux Vomica, Oil of Anise and Anethol, Oil of Cloves and Eugenol, Oil of Peppermint, Opium, Peru Balsam, Rhubarb, Rosin, Senega, Senna, Squill, Storax, Strophanthus, Sweet Almond, Valerian Root. Those recognized in all but one of the pharmacopœias are Arnica Flowers, Asafœtida, Black Mustard, Cacao Butter, Columbo, Ginger, Linseed, Lycopodium, Myrrh, Oil of Lavender, Oil of Lemon, Olive Oil, Peppermint, Rhatany, Sandalwood Oil, Sarsaparilla, Sweet Almond Oil, Tolu Balsam and Uva Ursi. Those recognized in all but two of the pharmacopœias are Absorbent Cotton, Aloes, Colchicum Seed, Linseed Oil, Lobelia, Manna, Nutmeg, Oil of Rosemary, Oil of Turpentine, and Volatile Oil of Mustard. Those recognized in all but three of the pharmacopœias are Bitter Almond, German Chamomile, Gum Ammoniac, Juniper Berries, Liquid Tar, Marshmallow Root, Pomegranate Bark, Spanish Saffron, Tragacanth, Turpentine, Wormwood and Levant Wormseed. It is of interest to note that six of the above mentioned drugs are not to be recognized in the new United States Pharmacopœia, namely, Bitter Almond, Gum Ammoniac, Juniper Berries, Spanish Saffron, Turpentine and Wormwood.

Of the 230 drugs recognized in but one or two pharmacopœias, 29 are found only in the United States Pharmacopœia, the following being included in both the U. S. P. VIII and IX: Bloodroot, Cottonseed Oil, Malt, Oil of Pimento, Oil of Chenopodium, Pinkroot, Prickly Ash Bark, Sabal, Saigon Cinnamon, Slippery Elm Bark, Stillingia, Yerba Santa. Those found only in the U. S. P. VIII are Blackberry Bark, Boneset, Crampbark, Geranium Root, Cypripedium, Figs, Leptandra, Calendula, Oil of Fleabane, Oil of Pennyroyal, Oil of Wintergreen (as

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* From the Mexican Pharmacopœia, which resembles a dispensatory rather than a pharmacopœia, and which contains more than 700 articles of botanic origin, many of them native to Mexico, only those drugs that are also recognized in some other pharmacopœia are here included.

such), Berberis Aquifolium, Pareira, Pipsissewa, Sassafras Pith, Scullcap, Sumach Berries.

The pharmacopœias consulted, with their dates of last revision, are as follows:

Pharmacopœa Austriaca, 8th ed.	1906
Pharmacopœa Belgica, 4th ed.	1906
British Pharmacopœia, 5th ed.	1914
Pharmacopœa Croatico-Slavonica, 2d ed.	1901
Pharmacopœa Danica, 7th ed.	1907
Pharmacopeé Francaise, 5th ed.	1908
Deutsches Arzneibuch, 5th ed.	1910
Pharmacopœa Hungarica, 3d ed.	1909
Formacopea ufficiale del Regno d' Italia, 2d ed.	1902
Pharmacopœia of Japan, English trans., 3d ed.	1907
Nueva Farmacopea Mexicana, 4th ed.	1904
Pharmacopœa Nederlandica, 4th ed.	1905
Pharmacopœa Norvegica, 4th ed.	1913
Russian Pharmacopœia, 3d ed.	1910
Pharmacopœa Serbica, 2d ed.	1908
Farmacopea oficial Espanola, 7th ed.	1905
Pharmacopœa Suecica, 9th ed.	1908
Pharmacopœa Helvetica, 4th ed.	1907
Pharmacopœia of the United States, 8th ed.	1905
† Pharmacopœia of the United States, 9th ed.	1916

The national pharmacopœias that have not been revised since 1900 and therefore not included in this list are as follows:

Farmacopea Argentina,	1908
Pharmacopœa Fennica, 4th ed.	1888
Pharmacopœa Graeca, 2d ed.	——
Pharmacopea Portugueza, 1st ed.	1876
Farmacopea Romana, 3d ed.	1893
Farmacopea Venezolana,	1900
Farmacopea Chilena,	1886

This list of drugs has been compiled upon the Latin plant names, alphabetically arranged. It was quite out of the question to use the pharmacopœial titles of the drugs, as these varied widely in the different pharmacopœias. Even with the arrangement under plant names several difficulties were encountered. Different names for the same plant are sometimes used in the various pharmacopœias, or the botanical source of a drug may still be in question, or the drug is derived from a number of different species or even genera. However, as this list is not designed to prevent controversies over botanical nomenclature, these difficulties are overcome by arbitrarily using that plant name in the majority.

In all cases the botanical names used in any pharmacopœia but not placed in the alphabetical list have been indicated in footnotes and indexed at the end of the number of the drug.

Key will be added for abbreviations used, at conclusion of article.

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† The list of U. S. P. IX drugs was taken from the Abstract of Proposed Changes of the United States Pharmacopœia, ninth revision, vol. iii of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, and was revised July 1 by Prof. J. P. Remington, Chairman of the Revision Committee. As the work of revision of the pharmacopœia is nearly completed, further changes will probably be very few.

Latin plant names	English names	Austrian	Belgian	British	Croatian	Danish	French	German	Hungarian	Italian	Japanese	Mexican	Netherlands	Norwegian	Russian	Servian	Spanish	Swedish	Swiss	U. S. P. VIII.	U. S. P. IX.
1. Abies balsamea, olr.	Canada Turpentine			×																×	
2. Abies excelsa, pfd. olr.	Burgundy Pitch						×			×							×				
3. Abies pectinata, olr.	Strassburg Turpentine																×				
4. Abies sibirica, vo. lv.	Oil of Pine Needles			×																	
5. Abrus precatorius, s.	Jequirity Seed																×				
6. Abrus precatorius, lv	Jequirity Leaves												×								
7. Acacia arabica, bk	Acacia Bark			×																	
8. Acacia Catechu, ext. wd	Catechu	×	×	×			×	×		×	×	×			×		×		×		
9. Acacia species, g. exud	Gum Arabic	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
A. Senegal		×		×		×	×	×	×		×		×	×	×		×		×	×	×
A. Verek										×		×			×		×				
A. Arabica							×										×				
10. Achillea Millefolium, fl. hb	Yarrow	×													×				×		
11. Aconitum Napellus, lv.	Aconite Leaves						×					×					×				
12. Aconitum Napellus, rt.	Aconite Root		×	×			×	×		×	×	×	×		×		×		×	×	×
13. Acorus Calamus, rh.	Calamus	×			×			×	×	×		×	×	×	×	×	×	×	×	×	
14. Acorus Calamus, v.o.	Oil of Calamus							×													
15. Adiantum, Herba capillorum veneris, hb	Maidenhair		×									×					×		×		
16. Adonis vernalis, fl. hb.	False Hellebore	×								×			×		×		×		×		
17. Ægle Marmelos, fr. ft.	Bael Fruit			×																	
18. Agathis australis, res.	Dammar						×	×			×				×	×	×				
19. Agropyron repens, rh.	Triticum	×	×	×			×		×			×					×		×	×	×
20. Aloe species, i.j	Aloes	×	×	×		×	×	×	×	×	×	×	×	×	×		×	×	×	×	×
A. Barbadensis	Barbadoes Aloes											×									
A. spicata							×			×							×				
A. Chinensis				×																×	
A. Africana	Cape Aloes						×							×			×	×			
A. linguæformis							×										×				
A. perfolata							×										×				
A. ferox						×	×			×		×		×			×	×	×		×
A. Socotrina	Socotrine Aloes									×		×									
A. Perryi				×																×	×
A. vera	Curacao Aloes									×							×			×	×
21. Aloysia citriodora, lv.												×					×				

22. Alpinia officinarum, rh.	Galangal					×	×	×						×	×		×	×	×		
23. Alsidium Helminthochortor, th.	Corsican Moss						×										×				
24. Alstonia constricta, bk.				×																	
25. Althæa officinalis, lv.	Marshmallow Leaves	×	×		×			×	×	×			×			×			×		
26. Althæa officinalis, rt.	Marshmallow Root	×	×			×	×	×	×	×	×	×	×	×	×		×	×	×	×	×
27. Althæa officinalis, fl.	Marshmallow Flowers		×				×														
28. Alyxia stellata, bk.													×								
29. Anacardium occidentale, lv	Cashew Leaves											×	×								
30. Anacyclus Pyrethrum, rt.	Pellitory Root	×		×			×					×					×			×	×
31. Anchusa Italica, fl.																	×				
32. Andira Araroba	Chrysarobin	×	×	×		×	×	×		×	×	×	×	×	×			×	×	×	×
33. Anogeissus latifolia, g. exud	Indian Gum			×																	
34. Anemone Pulsatilla, fl. hb.	Pulsatilla						×					×									
35. Angelica archangelica, lv.	Angelica Leaves						×														
36. Angelica archangelica, rh. & rt.	Angelica Root	×			×		×	×	×			×			×				×		
37. Antennaria dioica, fl. tp.			×				×														
38. Anthemis nobilis, fl. hd.	Roman Chamomile	×	×	×			×			×	×	×	×				×		×	×	
39. Anthemis nobilis, v.o.	Oil of Roman Chamomile		×	×																	
40. Apium graveolens, rt.	Celery Root						×					×					×				
41. Apocynum cannabinum, rh. & rt.	Canadian Hemp											×								×	×
42. Arachis hypogæa, f.o.	Peanut Oil			×				×											×		
43. Arctium Lappa, rt.	Burdock Root	×																		×	
44. Arctostaphylos Uva-Ursi, lv	Uva Ursi	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×		×	×	×	×
45. Areca Catechu, s.	Areca Nut							×											×		
46. Aristolochia Serpentaria, rh. & rt.	Virginia Serpentaria			×							×	×								×	×
47. Arnica montana, fl. hd.	Arnica Flowers	×	×	×	×	×	×	×		×	×	×	×	×	×	×	×	×	×	×	×
48. Arnica montana, lv.	Arnica Leaves				×							×									
49. Arnica montana, rh. & rt.	Arnica Root	×			×					×		×				×	×				
50. Artemisia Absinthium, fl. hb	Wormwood	×	×		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×		
51. Artemisia cina, fl. hd.	Levant Wormseed	×	×		×	×	×	×	×	×	×		×	×	×	×	×	×	×	×	
52. Artemisia vulgaris, fl. hb	Mugwort Herb						×												×		
53. Arundo Donax, rh.																	×				
54. Asarum Europæum, rh. & rt.	Asarabacca																		×		
55. Asparagus officinalis, rh. & rt.	Asparagus Root						×					×					×				
56. Aspidium Filix-mas, rh.	Male Fern	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
57. Aspidosperma Quebracho-blanco, bk.	Quebracho	×										×				×	×		×		×

2. Also see Pinus species, No. 386; French from Picea excelsa.
4. Also see Pinus species, No. 387.‡
7. British also from A. decurrens.
8. German and Japanese from A. suma only; Russian and Spanish also from A. suma.
15. French from A, pedatum.‡‡
16. Italian also from A. æstivalis, A. autumnalis and A. cupaniana.
18. German, Japanese and Servian from Shorea Wiesneri and other species.
19. Austrian, Belgian and Hungarian—Triticum repens; Spanish and Mexican from Cynodon Dactylon (Scotch or Bermuda grass).
24. British also from A. scholaris.
32. U. S. P. VIII and IX from Vouacapoua Araroba.
36. Austrian , German and Russian—Archangelica officinalis.
37. French—Gnaphalium dioicum.
43. Austrian—Lappa vulgaris.
44. Austrian—A. officinalis.
46. British, Mexican and U. S. P., VII and IX, also from A. reticulata (Texas Snake-root).
51. Danish and U. S. P. VIII—A. pauciflora; Belgian and French—A. maritima.
56. Spanish—Polypodium Filix-mas; U. S. P. VIII and IX—Dryopteris Filix-mas

Latin plant names	English names	Austrian	Belgian	British	Croatian	Danish	French	German	Hungarian	Italian	Japanese	Mexican	Netherlands	Norwegian	Russian	Servian	Spanish	Swedish	Swiss	U. S. P. VIII	U. S. P. IX
58. Astragalus species, g. exud	Tragacanth		×	×		×	×	×	×	×	×	×	×	×	×		×	×	×	×	×
A. adscendens			×									×			×						
A. creticus										×							×				
A. gummifer				×			×					×			×		×			×	×
A. verus										×					×						
59. Atropa Belladonna, lv	Belladonna Leaves	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
60. Atropa Belladonna, rt	Belladonna Root	×		×								×					×		×	×	×
61. Barosma betulina, lv	Buchu			×							×	×								×	×
62. Berberis aquifolium, rh. & rt	Oregon Grape																			×	
63. Berberis aristata, st				×																	
64. Berberis vulgaris, ft	Barberry						×														
65. Betonica officinalis, hb							×					×									
66. Betula alba, emp. o. fm. wd	Oleum Rusci	×									×		×		×				×		
67. Betula lenta, vo. fm. bk	Oil of Sweet Birch			×																×	×
68. Bidens pilosa, lv													×								
69. Bixa Orellana, lv												×	×								
70. Blumea balsamifera, lv													×								
71. Borrago officinalis, fl							×					×					×				
72. Boswellia species, g. res	Olibanum	×			×	×	×					×	×	×			×				
B. Bkaw-Dajiana		×															×				
B. Carterii		×			×	×	×					×	×	×			×				
73. Brassica nigra, s	Black Mustard	×	×		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
74. Brassica nigra, v.o	Vol. Oil of Mustard	×	×	×	×		×	×	×	×	×	×	×		×	×	×	×	×	×	×
75. Brassica Napus, f. o. fm. s	Rapeseed Oil					×								×				×			
76. Brucea Sumatrana, ft													×								
77. Butea frondosa, i. j. fm. st	Bengal Kino			×																	
78. Butea frondosa, s	Butea Seeds			×																	
79. Cæsalpinia Sappan, ht. wd	Sappan			×																	
80. Calamintha officinalis, fl. hb							×														
81. Calamus Draco, res. fm. ft	Dragon's Blood											×					×				
82. Calendula officinalis, lig. fl	Marigold																			×	
83. Callitris quadrivalvis, res	Sandarac	×				×	×				×						×	×			
84. Canarium commune, res	Elemi	×	×				×					×	×				×		×		
85. Cannabis sativa, fl. tp	Indian Hemp	×	×	×	×		×		×	×	×	×	×		×	×	×		×	×	×
86. Cannabis sativa, ft	Hemp Seed											×		×	×				×		
87. Capsicum annuum, ft	Spanish Pepper	×	×		×	×		×	×			×	×	×	×			×	×		
88. Capsicum fastigiatum, ft	African Pepper			×							×	×								×	×
89. Carum Carvi, ft	Caraway	×		×				×			×	×		×				×	×	×	×

90.	Carum Carvi, v. o. fm. ft.	Oil of Caraway			×	×			×						×		×			×	×	×
91.	Carum copticum, v. o. fm. ft.	Ajowan Oil			×																	
92.	Cassia species, lf.	Senna	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	C. acutifolia	Alexandria Senna		×	×	×					×	×	×		×	×			×		×	×
	C. angustifolia	India Senna	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×			×	×	×
	C. obovata	Sudan Senna									×							×				
93.	Cassia acutifolia, ft.	Senna Pods	×	×	×		×	×												×		
94.	Cassia Fistula, ft.	Cassia Pods	×	×	×						×		×								×	
95.	Cerasus Juliana, ft.	Sweet Cherry						×														
96.	Cerasus caproniana, ft.	Sour Cherry						×														
97.	Cetraria Islandica, th.	Iceland Moss	×	×		×		×	×	×	×	×	×	×			×	×		×		
98.	Chenopodium ambrosoides, fl. hb.	Mexican Tea	×										×									
99.	Chenopodium anthelminticum, v.o. hb. & s.	Oil of American Wormseed																			×	×
100.	Chimaphila umbellata, lv.	Pipsissewa																			×	
101.	Chondodendon tomentosum, rt.	Pareira																			×	
102.	Chondrus crispus, th.	Irish Moss	×	×			×	×	×		×	×	×	×				×		×	×	×
103.	Cibotium Barometz		×																			
104.	Chichorium Intybus, lv. & rt.	Chicory						×			×							×				
105.	Cimicifuga racemosa, rh. & rt.	Black Cohosh											×								×	×
106.	Cinchona species, bk.	Cinchona	×	×		×	×	×	×		×	×	×	×	×	×	×	×	×	×	×	×
	C. calisaya			×				×			×		×			×		×			×	×
	C. Ledgeriana			×							×					×			×		×	×
	C. officinalis												×			×		×			×	×
	C. succirubra		×	×					×		×	×	×	×	×	×		×	×	×		
107.	Cinchona succirubra, bk.	Red Cinchona			×			×		×											×	×
108.	Cinnamomum Camphora	Camphor	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
109.	Cinnamomum Cassia, bk.	Chinese Cinnamon		×		×				×		×	×			×		×		×		
110.	Cinnamomum Cassia, v.o.	Oil of Cassia		×		×				×		×								×	×	×
111.	Cinnamomum Oliveri, bk.	Black Sassafras			×																	
112.	Cinnamomum Zeylanicum, in bk.	Ceylon Cinnamon	×	×	×		×	×	×		×		×	×	×		×	×	×	×	×	×
113.	Cinnamomum Zeylanicum, v. o.	Oil of Cinnamon			×			×	×		×		×	×			×	×				
114.	Cinnamomum species, bk.	Saigon Cinnamon																			×	×
115.	Cistus ladaniferus, res.	Ladanum																×				
116.	Citrullus Colocynthis, pd. ft.	Colocynth	×	×		×	×	×	×	×	×	×	×	×	×		×		×	×	×	
117.	Citrullus Colocynthis, ft. pu.	Colocynth Pulp			×																	×
118.	Citrus Aurantium, ft.	Sweet Orange																×				
119.	Citrus Aurantium, ft. rd.	Sweet Orange Peel						×													×	×

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61. Japanese—also from B. crenulata; U. S. P. IX—also from B. serratifolia (Long Buchu).
66. Swiss—from B. pubescens and B. verrucosa.
67. U. S. P. IX—named under Methylis Salicylas; British—named under Oleum Gaultheriæ.
73. Russian—also from B. juncea; Japanese—also from B. cernua.
74. Russian and Croatian—also from B. juncea.‡
75. Danish—also from B. Rapa; Swedish—also from "other species."
83. Spanish—from Juniperus communis.
84. Netherlands—from Canarium species.
93. Belgian, British and Swiss—also from C. angustifolia.
99. U. S. P .IX—from C. ambrosoides anthelminticum.
108. Belgian—Laurus Camphora.
109. Spanish and Mexican C. aromaticum.
110. Austrian, Norwegian and Swedish—recognize Cinnamic aldehyde in place of the volatile oil.
116. Belgian—Cucumis Colocynthis.
118. U. S. P. VIII—C. Aurantium var. dulcis; U. S. P. IX—C. sinensis.

Latin plant names	English names	Austrian	Belgian	British	Croatian	Danish	French	German	Hungarian	Italian	Japanese	Mexican	Netherlands	Norwegian	Russian	Servian	Spanish	Swedish	Swiss	U. S. P. VIII	U. S. P. IX
120. Citrus Aurantium, v. o.	Oil of Orange						×				×	×								×	×
121. Citrus vulgaris, ft. ri.	Bitter Orange Peel	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
122. Citrus vulgaris, v. o. fm. ft.	Oil of Orange	×	×		×						×	×	×				×				
123. Citrus vulgaris, unr. ft.	Orange Berries							×			×			×	×			×			
124. Citrus vulgaris, fl.	Orange Blossom		×				×			×		×					×				
125. Citrus vulgaris, v. o. fm. fl.	Oil of Neroli	×	×				×		×	×	×	×					×		×		
126. Citrus vulgaris, lv.	Orange Leaves	×					×			×							×		×		
127. Citrus Bergania, v. o. ri. ft.	Oil of Bergamot		×				×				×	×			×		×		×		
128. Citrus Limonum, ft.	Lemon									×		×					×				
129. Citrus Limonum, ft. ri.	Lemon Peel			×	×			×	×	×	×	×	×		×	×	×	×	×	×	×
130. Citrus Limonum, ft. j.	Lemon Juice			×													×			×	×
131. Citrus Limonum, v. o. fm. ft.	Oil of Lemon	×	×	×	×	×	×	×	×	×	×		×	×	×	×	×	×	×	×	×
132. Citrus Limonum, s.	Lemon Seed																×				
133. Claviceps purpurea, scm.	Ergot	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
134. Cnicus Benedictus, lv. or hb.	Blessed Thistle		×		×			×			×		×		×			×	×		
135. Cochlearia Armoracia, fr. rt.	Horseradish Root			×			×					×	×				×				
136. Cochlearia officinalis, fl. hb.	Scurvy Grass						×			×			×		×						
137. Cocos nucifera, f. o. s.	Coconut Oil												×				×				
138. Coffea Arabica, s.	Coffee											×					×				
139. Cola acuminata, s. k.	Cola	×	×				×		×			×	×				×		×		
140. Colchicum autumnale, co.	Colchicum Root			×								×								×	×
141. Colchicum autumnale, s.	Colchicum Seed	×	×	×		×	×	×	×	×	×	×	×	×		×	×	×	×	×	×
142. Commiphora species, g. res.	Myrrh	×	×	×	×	×	×	×		×	×	×	×	×	×	×	×	×	×	×	×
C. Abyssinica		×					×				×			×	×			×			
C. Myrrha			×	×	×	×		×		×		×	×			×	×		×	×	×
C. Schimperi											×			×							
143. Commiphora Africana, g. res.	Bdellium						×										×				
144. Conium maculatum, fl., hb. or lv.	Poison Hemlock	×										×					×				
145. Conium maculatum, ft.	Poison Hemlock Seed						×					×					×			×	
146. Convallaria majalis, fl.	Lily of the Valley												×		×						
147. Convallaria majalis, fl. hb.	Lily of the Valley	×					×			×		×					×		×		
148. Convallaria majalis, rh. & rt.	Lily of the Valley											×								×	
149. Convolvulus Scammonium, rt.	Scammony Root			×													×		×		×
150. Convolvulus Scammonium, g. res.	Scammonium						×					×					×			×	
151. Convolvulus Scammonium, res.	Scammony Resin			×	×					×											
152. Copaifera species, olr.	Copaiba	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
C. coriacea						×		×			×	×			×				×		
C. Guyanensis		×				×	×	×		×	×	×			×				×		
C. Langsdorffi						×	×			×		×			×			×		×	
C. officinalis		×				×	×	×		×	×	×			×		×	×	×		

153.	Copaifera species, v. o.	Oil of Copaiba			X																X	
154.	Copernicia cerifera, Lv. wax	Carnauba Wax												X								
155.	Coptis anemonæfolia, rh.											X										
156.	Coriandrum sativum, ft.	Coriander	X	X	X	X	X	X		X			X	X	X		X	X			X	X
157.	Coriandrum sativum, v.o.	Oil of Coriander			X										X						X	X
158.	Cotula aurea, fl. hd.	Spanish Chamomile																X				
159.	Crocus sativus, sg.	Spanish Saffron	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
160.	Croton Eluteria, bk.	Cascarilla Bark	X		X		X		X		X	X	X	X	X	X			X	X		
161.	Croton Tiglium, s.	Croton Seed						X						X				X	X			
162.	Croton Tiglium, f. o.	Croton Oil	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
163.	Cucurbita Pepo, ft.	Pumpkin																X				
164.	Cucurbita Pepo, s.	Pumpkin Seed			X			X					X					X			X	X
165.	Cuminum Cyminum, ft.	Cumin		X									X									
166.	Cupressus sempervirens, ft.	Cypress											X					X				
167.	Curcuma longa, rh.	Turmeric		X				X					X	X								
168.	Curcuma Zedoaria, rh.	Zedoary	X			X		X	X	X		X				X	X	X		X		
169.	Cyclamen Europæum, rh.	Sow Bread																X				
170.	Cydonia vulgaris, ft.	Quince						X					X									
171.	Cydonia vulgaris, s.	Quince Seed		X																X		
172.	Cymbopogon citratus, v. o.	Oil of Lemongrass			X																	
173.	Cynanchum Vincetoxicum, rt.	Swallow-wort						X														
174.	Cynoglossum officinale, rt.	Hound's Tongue Root					X						X		X			X				
175.	Cynoglossum officinale, rt. bk.	Hound's Tongue Bark						X														
176.	Cypripedium parviflorum, rh. & rt.	Ladies' Slipper Root																			X	
177.	Cytisus Scoparius, fl. tp.	Broom Tops			X																X	
178.	Daphne Mezereum, bk.	Mezereum										X	X							X	X	X
179.	Datura fastuosa, var. alba, lv.	Datura Leaves			X							X		X								
180.	Datura fastuosa, var. alba, s.	Datura Seed			X																	
181.	Datura Stramonium, lv.	Stramonium	X	X	X		X	X	X		X		X	X	X	X		X	X	X	X	X
182.	Datura Stramonium, s.	Stramonium Seed																		X		
183.	Delphinium Staphisagria, s.	Stavesacre Seed		X	X			X					X	X							X	X
184.	Digitalis purpurea, lv.	Foxglove	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
185.	Dipterix odorata, s.	Tonka										X	X									
186.	Dorema Ammoniacum, g. res.	Gum Ammoniac	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X		
187.	Dorstenia Braziliensis, rt.	Contrayerva																X				
188.	Drimys Winteri var. granatensis, bk.	Winter's Bark						X					X									
189.	Drosera rotundifolia, pl.	Sundew						X					X									
190.	Duboisia myoporoides, lv.	Duboisia																X				

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121. Belgian and Japanese—C. Bigarde; British, Norwegian and Swedish—C. Aurantium, var. Bigarde; Austrian, German, Hungarian, Swiss and U.S.P. VIII—C. Aurantium var. amara; U. S. P. IX—C. Aurantium amara.
131. British, Swedish and Swiss—C. medica var. Limonum; U. S. P. IX—C. medica Limonum; German, Italian and Spanish—C. medica.
134. Netherlands—Carbenia Benedictus.
139. Austrian, Hungarian and Netherlands—also from C. vera; Swiss—from C. vera and other species; Belgian and Spanish—Sterculia acuminata.
142. Belgian, Italian and Spanish—Balsamodendron species.
143 French and Spanish—Balsamodendron Africana.
152 Several pharmacopœias—Copaiba species.
164 Mexican and French—also from C. maxima.
168 Spanish—C. aromatica.
172. British—also from C. flexuosus.
176. U. S. P. VIII—also from C. hirsutum.
179. British also from D. Metel; Japanese—D. alba.
181. U. S. P. IX—also from D. Tatula.
186. British and German—also from "other species."

(To be continued.)

LABORATORY NOTES ON COLOR TESTS.*

BY G. H. P. LICHTHARDT.

Five years ago the author submitted the following formula as a reliable identification test for caramel in flavoring extracts:

Tannic acid	1.00
Sulphuric acid (1.84)	.75
Water to make	50.00

The tannic acid is dissolved in about 30 Cc. of water, the acid is added, and, after the precipitate which is formed is dissolved, the quantity is made up to the required weight.

I have not found it necessary to change the original formula, which has been found to keep well and not lose its efficiency. This test has since been used in the laboratory upon the many different articles which came to my notice while city analyst of the city of Sacramento, and it was found that not only was it possible to detect caramel in flavoring extracts, whisky, brandy, and other liquids, but also in many other preparations, such as ready-made medicines, vinegar, and in one case it enabled me to expose a fraud in a celebrated medicine vendor case.

An attempt was made to detect chicory in coffee infusion, but unsuccessfully, as it was found that, while chicory infusion gave a dark precipitate, coffee also gave a more or less colored precipitate; while it differed from that thrown from chicory, it cannot be distinguished in an infusion of a mixture of these two substances.

In the case of vinegar the liquid is carefully neutralized and the test applied in the usual manner, which is: to about 5 Cc. of the suspected liquid there is added an equal amount of the test solution. The mixture is slightly heated and allowed to stand for 24 hours, when, if caramel is present in the original solution, a dark-colored precipitate will be deposited.

The identification of the source of color in food and drug analysis is rather a difficult one, and one must not depend upon any one test, but should ever be on guard to prevent error. This was rather forcibly brought to my notice some years ago in regard to the double dyeing test for coal-tar colors. A number of oranges were sent to the laboratory for examination. Their color was not at all normal, but appeared to have been dyed. Upon investigation it was found that the coloring matter would dye wool from an acid bath; that the color could be removed from the wool by dilute ammonia, and that it would again dye from the ammonia solution when this was rendered acid; also, that the color was very soluble in alkaline solutions, especially in dilute ammonia.

It was found that the natural color of oranges and of lemons has this peculiar property which is analogous to the behavior of the coal-tar colors. The method of double dyeing has long been used to distinguish these colors, but it has been my observation that one should not depend thereon as a positive test.

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., San Francisco meeting.

HISTORICAL REVIEW OF SOAP MANUFACTURING.*

BY JOSEPH ABRAHAM.

This paper is partially a compilation taken from various books, journals, and other sources, together with results of the author's experience in the manufacture of soaps covering a period of forty years.

Soap is mentioned in the Old Testament, and the Hebrew words used in the passages Jeremiah ii: 22, and Malachi iii: 2 are stated by authorities to refer to vegetable and mineral lyes; *i.e.*, potash and soda in some form.

In Homer's time the cleansing of clothes seems to have been effected by simply rubbing or pounding in water without any addition, for he tells how Nausicaa and her attendants washed clothes by stamping them with their feet in pits filled with water.

Later on the juices of certain plants were employed as detergents, also natural soda and wood ashes. The fact that the strength of alkalies can be increased by lime was already known to Palus Egina. Fuller's earth was, however, the principal agent used for washing in ancient times, the fuller's art being due, it appears, to one Nicias, the son of Hermais. The Roman fullers (*fullones*), who washed dirty garments, were persons of no little importance. Their trade and manner of carrying it on were regulated by laws. At one time fuller's earth, found of a superior quality in Staffordshire and other counties of England, was considered so indispensable for the dressing of fabrics that it was made a contraband commodity, and its exportation made equally criminal with the heinous and wicked export of wool.

The elder Pliny gives us the earliest account of soap as having been first manufactured by the Gauls, and used by them as a cosmetic and for dyeing the hair red.[1] Dyeing the hair red shows the presence of free alkali.

He also states that it was made from tallow and ashes, the best being prepared from goat's suet and beechwood ashes, and that the Gauls employed it both in a solid and liquid form.

From this statement by Pliny it has been generally concluded that the invention of soap was due either to the Gauls or the Germans.

E. Moride is of the opinion that Pliny's statement simply refers to the application of soap as a cosmetic and hair-dye, and believes the Phœnicians, who settled in Gaul 600 B.C., to have been the actual inventors of soap.

It cannot, however, be supposed that the first soap was an artificial product like that of the present day. It was very likely a mixture of oil and wood ashes, which was used as a salve in eruptions of the skin and similar diseases. Later on it may have been accidentally discovered that more effective salve was obtained by mixing the wood ash with water and burnt lime before combining it with the oil. Thus, no doubt, products were gradually obtained which resembled the present soaps of Algiers, of which Leon Droux writes: "In the interior of Algiers the Kabyles bring to market a mass which serves the double purpose of a remedy and for household use. It is a soap prepared almost in the cold way, of a slightly yellowish color, somewhat transparent, and of a jelly-like consistency, but with a very small content of water. It is made from olive oil and lye, the latter being prepared by allowing water to percolate through a mixture of wood ashes and burnt lime. The Arabs used the salve-like product thus obtained for affections of the skin, as well as for household purposes, and for washing wool to be worked into tissues."

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* Read before Detroit Branch, A. Ph. A., January, 1916.

[1] When Praxiteles was asked which of his works in marble he valued most, he is said to have answered: "Those on which Nicias has set his mark." Pliny explains this expression by the comment, "So much importance did Praxiteles attach to the circumlition (covering of color) applied by Nicias." This passage was for a long time the principal foundation for the theory that the Greeks painted their statues, which is now confirmed by the works themselves. The hair of the Hermes of Praxiteles had a red color when discovered.

As a detergent, soap is first mentioned by the authors of the second century after Christ. The celebrated physician, Galenus, speaks of it as a detergent as well as a medicament, and considers the German soap as the best, and the Gallic as the next in quality.

But little is known of the further gradual development of the soap industry. Marseilles, it is said, carried on a considerable trade in soap as far back as the ninth century. In the fifteenth century Venice was the principal market, but was outstripped in the seventeenth century by Savona (whence the French name for soap, "*savon*"), Genoa, and Marseilles.

It is somewhat uncertain when soap-making was first introduced into England, but it was probably in the fourteenth century. The first patent for improvements in the manufacture of soap was obtained in 1622 by Messrs. Jones and Palmer, of London. At the same time a company obtained a monopoly for the manufacture of soap, paying annually a tax of $10,000 for 3000 tons of soap.

In France the monopoly system was also in force in the seventeenth century. In 1660, Pierre Rigat, a merchant of Lyons, made a proposition to the king to manufacture by special methods sufficient soap for the needs of France without importing any of the materials required in the manufacture. Louis XIV accepted the proposition and granted him the sole privilege for twenty years of erecting factories for the manufacture of white, mottled, and all other kinds of soap in any location it suited him. The six or seven factories then in existence were allowed to remain, but under the condition that they should not increase their capacity and would sell their products to Rigat at a fixed price. This patent, being the cause of many disputes, was revoked in 1669.

But little is known about the soap industry in Germany during the early centuries.

The business was carried on on a small scale, and this could not well be otherwise, since, with the impure raw material, principally crude tallow and wood ashes, one boiling frequently required as many days as hours at present. The industry was further hindered by the general practice of every household preparing its own soap, which continued up to the introduction of artificial soda and tropical vegetable fats. But since then many large factories have been established, and, as the German soap-boilers applied to the trade its true chemical character, they produced superior goods. The soft soap of Germany is still much used for household purposes as well as for manufacturing, and it has acquired a reputation for excelling in quality that of other countries.

Not much advance was made in the manufacture of soap until at the beginning of the present century it commenced to attract the attention of scientific men, and Leblanc gave to the world his splendid process for the production of soda from common salt.

The next great discovery, and not second in importance, was due to Chevreul, who, by describing the exact constituents of the fatty bodies and making known the processes for their separation, raised soap-making from empiricism and guesswork to its present position as a truly scientific art. By establishing the practical and scientific basis upon which the soap industry is now carried on, Chevreul and Leblanc may be considered as its founders.

The introduction of new fats and oils, especially of palm oil, palm-kernel oil, and coconut oil, added an important variety to the list of soaps, particularly of toilet soaps. The employment of caustic soda, which enables the soap-boiler to prepare with great ease caustic lyes of a high degree, was also of great importance, as well as the production of potassium chloride, and that of caustic soda in the electrolytic way.

A considerable change in the mode of boiling appears to have been brought about by the use of fatty acids for the manufacture of soap, and the saponification by alkaline carbonates connected therewith. When, about fifty years ago, the price of glycerin rose enormously, many factories engaged in the business of abstracting the glycerin from the fats and selling the fatty acids to the soap manufacturers. Some larger soap plants also installed at that time autoclaves for the saponification of fats, and the question has recently been again agitated, particularly by the introduction of fermentative splitting of fat, chiefly because the latter requires a less expensive plant than autoclave saponification.

Material changes and improvements have been made in the machinery used in the manufacture of soap. In this country there has been a steady progress in the improvements constantly making in this important branch of industry, until now we are producing goods which for quality compare favorably with any made elsewhere; moreover, we have invented much new and improved machinery and apparatus that greatly facilitate the processes, saving labor and time and improving the quality. Thus the United States is at this time but little behind any other country, either in the amount made or in the quality of the article; while in the economy and facility of their manufacture this industry is fully abreast, if not in advance, of that of nearly all other countries, and is steadily progressing, so that it cannot be long before we shall equal in quality and excel in quantity.

The primitive system of slabbing by hand and drawing a wire, in parallel lines uniform distances apart, through the frame of soap, has been almost entirely replaced by mechanical slabbing devices. Mechanical crutchers have been largely substituted for hand crutchers, thus doing away with the laborious work connected with the latter. Great improvements have also been made in presses, this being of importance not only for toilet soaps, but also for cosmetic soaps, as more value is now attached to the external appearance of the latter than was formerly the case. Iron frames are now largely used in place of wooden ones. To prevent the soap from cooling too rapidly, the frame is sometimes enveloped in a poor conductor of heat in the form of a mattress stuffed with tow.

In modern times it has been endeavored to shorten the time for production of soap by avoiding long cooling in the frames. Pioneers in this respect were A. and E. des Cressonieres, of Brussels, with their "*broyeuse secheuse continue.*" While only dried soap could formerly be used in the milling machine, the above-mentioned apparatus allows of the working of the hot liquid soap as it comes from the kettle, and soap finished in the kettle yesterday can, perfumed and colored, be brought the next day into commerce. This invention was originally intended only for the preparation of milled toilet soaps, but it was soon found to be of use also for the manufacture of various kinds of domestic soap, and the idea has been utilized in the construction of soap-cooling machines.

The manufacture of soap in the closed boiler under pressure has been frequently tried. Thus Arthur Dunn, a number of years ago, patented in England a process the object of which was to accelerate the process of saponification by effecting it in a pressure boiler at a temperature of from 302° to 320° F. Moveau later on proposed to effect the manufacture of soap in a pressure boiler provided with a safety valve. The boiler was furnished with a stirrer and was surrounded by a jacket into which steam for heating the boiler or water for cooling could be introduced. A temperature of 302° to 320° F. was produced in the boiler. Previous to boiling, the fat and lye were introduced through a manhole, which was then closed; after the air had been expelled the safety valve was also closed. Additions of fat or lye required after the commencement of boiling were forced into the boiler by means of a pump. The spent lye and finished soap were discharged through a pipe provided with a stopcock which passed from the bottom of the boiler through the jacket.

However, all these methods for the preparation of soap in pressure boilers have been abandoned because they did not prove satisfactory, and there is no probability that the desired result will be attained by such experiments. Saponification is, to be sure, rapidly effected in a closed boiler under pressure, but the saponified fat is not soap such as is demanded by commerce. Besides the saponification of the fats, there are other operations in the production of the artificial product known as soap, and in order to be quite sure these operations can only be carried on when the soap-boiler has the soap before him in the open kettle.

Manufacture of soap is at the present time connected with greater difficulties than it was thirty or forty years ago. The frequent changes in the prices of raw materials, while the prices of the soaps themselves have become very low, allow no longer of work by rule of thumb, and force the soap-boiler to adapt his manufacturing processes to prevailing conditions in order to enable him to compete with others.

RAW GOODS USED IN THE MANUFACTURE OF TOILET SOAPS.

Raw goods used in the manufacture of the better grade of toilet soaps are as follows:

Coconut oil (Cochin), coconut oil (Ceylon), palm-kernel oil, bleached white tallow, unbleached tallow, olive oil, etc.

Cochin coconut oil, at ordinary temperature, is a solid white fat possessing a bland taste, and, when fresh, a peculiar, although not unpleasant, odor of the coconut. This oil is chiefly used in soap-making, but during recent years vegetable butter has been manufactured by the Schlicks process from Cochin coconut oil by treatment with alcohol and animal charcoal whereby the free acids are removed. This product is sold under various names, such as coconut butter, vegetable butter, lactine, vegetaline, neucoline. The color of this product is perfectly white; same consistency as butter, with a sweet, agreeable flavor and free from any tendency to turn rancid. Cochin coconut oil is obtained, as the name conveys, from Cochin, China, Siam, and the Malabar Coast.

Ceylon is the second-quality oil manufactured from coconuts. This is obtained from nuts which have fallen from the tree and are collected by the natives and the oil extracted by either expressing or boiling. It is then filled into large barrels and sold to the middleman, who accumulates sufficient for shipment and then exports same to America and Europe.

Coprah coconut oil is fat obtained from the dried-out kernel which has been exposed to the sun or kiln-dried, filled into bags, exported to Marseilles, in France, Hamburg, in Germany, or Hull, in Great Britain, where it is treated and the oil extracted and then in turn exported to America.

Palm-nut oil is obtained from the kernels of the palm-tree fruit. The kernels are imported from Europe, and the fat is obtained from them either by expression or by extraction with solvents. The color of the palm-nut is white; the darker oils, formerly met with owing to faulty manufacture, have disappeared from the market. It possesses a pleasant smell and an agreeable nutty taste. When fresh, the oil is neutral, but on keeping it easily turns rancid with liberation of free fatty acids. Palm-nut oil is chiefly used for soap-making.

Tallow is the fat extracted from the carcasses of beef, mutton, or goats. The quality used for perfectly white soaps is bleached, but for other soaps unbleached tallow answers all requirements.

Olive oil is extracted from the fruit of the olive tree by expression or by extraction. The quality of the olive oil depends upon many circumstances, such as the variety of the olive itself (there are 300 or more varieties of olive trees), the degree of ripeness of the fruit, the manner of gathering, the mode of expressing, etc. The finest oils prepared from the picked fruit, under the names of Virgin, Provence, Aix oil, are edible. The next quality ranks and is sold in this country as finest Tuscan cream. This is used as salad oil. The next lower grade is used for soap-making, which latter is the one with which we are now dealing. Olives in this case, after the fine oil has been expressed, are subjected to further high pressure, equivalent to 4000 pounds to the square inch, which yields a pale-green olive oil which finds extensive use in toilet soaps.

Caustic soda such as is used in soap-making is manufactured by the direct process of liberating chlorine from a solution of common salt by electrolysis. This splits up the salt solution, chlorine being collected over lime which makes bleaching powder, the sodium being taken up by the mercury which is in the bottom of the tanks used in this process and the sodium extracted from the amalgam with water. This liquid is then evaporated to a solid mass, in which form it is delivered to us. To enable us to use the caustic soda, we dissolve this with water to the various degrees of strength necessary.

Caustic potash is mostly manufactured from potassium sulphate which is derived from the so-called Stassfurt salts found in enormous quantities about twenty-five miles southwest of Magdeburg. This mineral is treated by the Leblanc process by roasting in a furnace equal quantities of potassium sulphate, limestone, and small coal. The fused mass is taken from the furnace and allowed to cool, when it is dissolved in water until the potassium carbonate which it contains is dissolved out. This solution is treated by boiling with lime, which converts the carbonate into potassium hydroxide. The solution is then concentrated until it becomes solid, and is then filled in drums.

PROCESS OF MANUFACTURING TOILET SOAPS.

The tallow, coconut and olive oils, or other fats are first of all melted, each one by itself, in square iron tanks and pumped from them into the soap kettle. When the full quantity necessary for the boiling of soap is pumped into the kettle the process of boiling begins.

Steam is turned into the kettle through open coils, and caustic soda slowly pumped into the melted fats until there is sufficient added, a matter that is left to the judgment of the man in charge of the process. This mixture is boiled until saponification is complete. When this point is reached, salt is added to the kettle to separate the soap from the lye. When this is accomplished, the steam is shut off and the kettle allowed to stand at rest until the following morning. The waste lye in the bottom of the kettle is then drained off through a valve and pipe at the bottom of the kettle. When all the lye is removed, steam is turned into the kettle and caustic soda added slowly as in the previous operation. This is again salted out and the kettle allowed to rest until the following morning. This ends the second operation.

The third operation, or washing change, is the repetition of the previous operations, only after the lye is drained off it requires a much smaller amount of caustic soda to perfectly saponify the whole of the remaining fats that may have escaped in the two previous operations. When satisfied that saponification is complete, salt is added, and when separation is nicely balanced the kettle is allowed to remain until the following morning.

Fourth and last change: the lye is drained off the kettle as in previous operations, and steam turned into the kettle and boiled vigorously. This is the last and most important operation. This is the point where skill and judgment are required such as cannot be obtained from any text-books on the subject. It entirely remains with the soap-maker to finish the product in the most satisfactory manner, such as experience only can teach. The operation of boiling has now been completed. The kettle of soap is now allowed to stand for three, four, or five days, or more if necessary, until the temperature of the soap drops to about 140° to 160° F. The soap is then ready to pump out into frames of a capacity of about 1300 pounds. These frames are so built that the sides and ends can be taken off when the soap becomes solid (which takes three to five days), when it is cut up by wires into slabs, bars, and chips. These chips are then placed in a dry room to take out all the excess of moisture and put same in condition for milling. The soap as it is pumped from the kettle contains about 62 percent of fats, but after it leaves the soap mills it contains 80 to 82 percent fats. When the chips are sufficiently dried they are taken to the soap mill and crushed over the rollers several times until a perfect ribbon rolls off on the opposite side of the machine. During this milling process perfume, colors, or medicinal substances are added. These ribbons are transferred to the plodder and are there compressed by a large screw eight inches in diameter and forced through the orifice in front of the machine in a long bar, the necessary size for the tablet of soap required. The long bars are placed on a cutting table, cut into sections, and then placed in the stamping machine and there subjected to further pressure of eight tons, which gives the bars of soap the necessary shape and lettering.

This covers the whole process of soap manufacturing in general. There are many specialties which are made by different processes which do not concern us.

Soap powder is made in the same manner as the soap mentioned above, only in this case coconut oil and tallow only are used. This soap, after being dried in chips, is subjected to further treatment by grinding it into an impalpable powder. This powder must be absolutely dry, and, as all soaps are slightly deliquescent, it is necessary to keep same in a dry place, as it absorbs moisture from the atmosphere, especially if stored in a humid or damp place.

Soft soap or shampoo is made of a mixture of tallow, coconut oil, and in many cases a little castor oil. In this case caustic potash is used. This makes the soap soft, clear, and transparent and easily soluble in water, as should be the case for the purpose for which it is required.

Liquid soaps are made of coconut oil, tallow, and castor oil. These also are made with caustic potash at the lowest possible temperature, and, to facilitate the free lathering qualities of liquid soap, a quantity of alcohol is used. The coloring matter and perfume are added when quite cold. It is filtered and bottled ready for the trade.

USES OF SOAP.

The various functions desired in the use of soaps are that they should be good detergents both for the removal of dirt and any natural secretion or fat from the skin. To do this without injury to the epidermis it is necessary that the soap should have a very slight amount of free alkali. The free alkali removes a small portion of the natural fats of the skin, leaving the pores clean and open so that they can perform their natural duties. Superfatted soap, or, as it is commonly known, soap with an excess of free fat, will not answer this purpose.

Most persons have long believed that a liberal use of soap and water insures bodily cleanliness. It will be a shock to learn, therefore, that some persons have skins that soap only makes dirty. This is on the high authority of the London Lancet.

The active principle of all soaps is alkali, the action of which ordinarily is to separate dirt from the oil of the skin and enable it to be washed away.

But it seems that certain skins are not proof against the action of alkali, and soap acts as a detergent because it forms an emulsion with dirt and the liberated alkali removes the fat which causes dirt to cling. Any inquiry, therefore, turned to the question of the effects of soaps upon the skin amounts to the determination of the sensitiveness of the skin to the action of alkali.

Owing to hydrolysis, soaps when dissolved in water exhibit a marked alkaline reaction, and this is true also of the so-called superfatted soaps, though these are generally made with superior materials, and for that reason may be preferred. An interesting contribution on the subject appears in the reports recently issued from the laboratory of the Royal College of Physicians of Edinburgh. In an article entitled "Soaps and Their Effects on the Skin," Dr. Gardiner points out that among the more expensive toilet and superfatted soaps the proportions of mineral ash and alkali are at least as high as in the coarser types.

When an alkaline solution such as that of soap touches the skin there is induced, he says, both an excessive secretion of the acid sebum and sweat, and a solvent effect on the protective epithelium. Reviewing the different ingredients found in soaps, he concludes that all soaps from their chemical constitution must be irritant to the normal skin. The effect varies, he states, with the individual skin, and is more pronounced in senile and diseased skins. Cotton-seed oil and rancid fats, according to his observations, are probably largely responsible for the irritant effects in cheaper soaps.

Castor-oil soap, he finds, is least irritating, but it has the disadvantage of being too freely soluble and therefore wasteful, while it is apt to become rancid. Coconut-oil soap is decidedly irritating, while palm-oil soap, though still an irritating variety, is less so, and tallow soap shows a low irritating value.

If these deductions are correct, Dr. Gardiner thinks they supply a reason for the bad effects of modern domestic soaps of the cheaper and clothes-washing kinds, as they are made mostly from cheaper fats and the cheap oils, coconut and cotton-seed. Formerly tallow and olive oil were more used, and the evil effects of soaps were not so pronounced at that time.

No one can be in touch, he says, with the out-patient department of a large hospital and not observe the economic loss, not to speak of physical damage, due to soaps and soap powders. If hands were considered as well as the clothes, and more of the old-fashioned joint oil pressed into service, the results, he considers, would tend to lessen this serious and increasing occupational dermatitis.

Another of the uses to which soap is of the very largest benefit is that of a germ destroyer, and Dr. H. W. Hill, of the State Board of Health of Minnesota, declares that the frequent washing of the hands with good soap would prevent the spread of many contagious diseases. It has lately become known that soap possesses disinfectant and deodorizing properties in a high degree. According to an experiment carried out by the Berlin Health Commission, a solution of one part of potash soap in 10,000 parts of water completely prevented the development of the bacilli of a permanent cattle disease, and the said commission has recommended a solution of potash soap, 15 to 10,000, as a first-rate disinfecting medium.

In a recent test on soap solution on various bacilli the following result has been compiled:

In a one percent soap solution on cholera bacillus in one minute there was no growth. The same applies to diphtheria, typhoid, plague, tuberculosis.

It is also found that potash soft soap is eight times as powerful as potash solution, which goes to prove that any good soap is a powerful antiseptic and that the purer the soap the stronger are its antiseptic properties.

In a paper presented before the International Congress of Zoologists in 1907, the writer stated: "We have confirmed the fact that the insecticidal value of soap is very considerable."

There are two classes of insecticides—those which act as poisons on the food of the insect, such as sprinkling the place they infest with soap powder, or the external kind which kills the insect by simple contact. This latter system is the one which interests us mostly.

In order to wet a given body in the best way a liquid must be chosen which has a low surface tension. This can be obtained by making a solution of sodium oleate (soap). The same wetting effect can be produced by the addition of 5 percent of a solution of 0.1 percent. Solutions of one in a thousand are as efficient as those of 50 percent. For hard water a little carbonate of soda should be added. This solution is taken through the vineyard, the hop plantations, or through trees, and is sprayed over the leaves and branches early in the season. This solution instantly wets the insects, dries on them, and causes their death.

As you are probably aware, there is no other article which is used in so many different ways as soap. A few of those who utilize soap largely are silk dyers, wool scourers, toilet supply companies, dry cleaners, carpet cleaners, disinfecting companies, auto garages, wire spinners, wire drawers, veterinarians, gardeners, farmers, etc.

In 1909 the soap manufactured in the United States was valued at $111,357,777, and 18,000 persons were engaged in the manufacture of it. It is peculiar that, though the number of soap factories has been decreasing since 1859, the production has, of course, enormously increased. This is accounted for by the elimination of the small makers, those who in the days of our fathers and grandfathers used to peddle the soap of their own making.

In this progressive age soap manufacturing requires a high degree of scientific knowledge and skill such as cannot be retained by the small factory. The excessive cost of small productions also militates against the small man's survival. He is under a great disadvantage in the purchase of raw goods on account of purchasing small quantities.

The cost of production for fifty tons of soap is only little more than for producing five tons, so that without a large amount of capital it is very difficult in these days for a small manufacturer to exist.

The civilization of a country can also be estimated by the quantity of soap which is produced or, in other words, used per capita of population. The consumption of soap in the United States and Great Britain is about equal, namely, fourteen pounds, while the consumption in Russia is one and one-half pounds per capita. The same amount is approximately consumed in South America, India, and China. This is not because the people will not use soap, but it is on account of the poor wages they are earning and the distance from the place of importation, which places a prohibitive price upon this commodity. In the interior of China, ten years ago, it was the writer's experience, when travelling four hundred miles from Shanghai, to see in the native market small pieces of soap used as money. This evidences that there are markets open in these countries for an enormous amount of goods when we shall be in a position to deliver to them.

The world improves with each passing year
Because each man in his little sphere
Takes off his jacket, grins and sings,
And keeps on doing the same old things.

LABORATORY, FREDERICK STEARNS & COMPANY.

IDENTIFICATION OF CASCARA ADULTERANT.

The adulterant of Cascara bark noted by F. A. Miller (Jour. Am. Pharm. Asso., 1912, p. 1207), but which he did not identify, and again mentioned by Gathercoal (Jour. Am. Pharm. Asso., 1915, p. 70) and there pronounced to be the bark of a *Prunus,* has been definitely identified as the bark of *Prunus padus.* This bark is a commercial article in Germany, according to Prof. E. M. Holmes, and has been received in England as a substitute for wild cherry bark.

The adulterating bark closely corresponds in internal structure to a specimen of fresh *Prunus padus* bark recently received from Kew Gardens, London.

No further report has been received of any of this false Cascara since the shipment to Chicago in 1914. Probably the attempt of some unscrupulous European exporter or American importer to depreciate the standard of American cascara was frustrated by the publicity given to the matter by Mr. Miller in 1912. —*E. N. Gathercoal,* University of Illinois School of Pharmacy.

PETROLEUM WHITE OILS.*

BY DR. R. E. HUMPHREYS.

For many years white paraffin oil has been employed with the endorsement of physicians for the treatment of constipation and other intestinal troubles. It is a somewhat viscous liquid that is not at all changed chemically by the intestinal secretions nor absorbed from the alimentary tract. So far as is known, it can be given in very large doses without any bad effect. In the intestinal tract it acts as a lubricant and protective agent; is not at all affected by the processes of digestion; its lubricating action is without irritation, and there is no artificial peristaltic activity, such as is caused by laxative and cathartic drugs. It assists in bringing about bowel evacuation solely because of its action as a lubricant. In the upper intestinal tract the oil becomes mixed with the food and waste products of digestion, so that ultimately the fæces are softened, the entire tract is lubricated, and the expulsion of the fæcal mass is brought about more promptly and with greater ease. It is very probable that it also exerts in the bowel a disinfectant action on some of the strains of fæcal bacteria.

These white oils have hitherto been manufactured almost exclusively from distillates of Russian crude petroleum. For a good many years their consumption in this country was very limited, owing to the fact that their therapeutic value was not generally recognized. For this reason, and because their production involved complicated and expensive processes under the control of Russian manufacturers, American refiners produced no white oil until the present war cut off the supply. In the meantime the demand had grown so amazingly that our refiners felt justified in making an effort to produce the oil from the crudes found in Pennsylvania, Mid-continent, and California fields. There is no reason why such oils manufactured from American crudes should not be the equal of, or even better than, those having their origin in the Russian crude. The paraffin crude oils are as amenable to treatment as the Russian. The latter are composed chiefly of naphthene hydrocarbons, and the naphthenes are not quite so stable as the paraffins. They stand between the paraffins and the olefins.

The method of treatment of the distillates from crude oils of whatever origin consists in the complete removal of all unsaturated hydrocarbons and sulphur and other derivatives. The means by which these things are brought about vary with each manufacturer, and there have been a number of processes patented both in this country and abroad. One American manufacturer has secured the Russian patented processes and is using them with great success on American crudes. The resultant oils should be colorless, tasteless, odorless, free from fluorescence, acids, alkalies, sulphur compounds, and other deleterious substances.

Occupying the field to the complete exclusion of white oils made from crudes of a different composition, the Russian oils became standard, as it were; and the tests tabulated in the British and United States Pharmacopœias, and the specifications made by the dealers were based upon the tests and the properties of the Russian white oils. It came to be believed that the oils should be as viscous as castor oil and that they should have a high specific gravity; but it has been thoroughly demonstrated that the product of American manufacture having a medium viscosity and a specific gravity of 0.85 to 0.86 is just as effective as, and even more palatable than, the Russian oils. The specific gravity of products from Russian petroleum is naturally higher than from American, because of the difference in chemical composition. But there can be no therapeutic significance in a difference of specific gravity. When the oil is very viscous it not only clings an objectionable time to the tongue and throat but does not so effectively permeate the fæces. The thinner oil disappears quickly from the mouth and is taken very readily by children and the sick.

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* Read before the Chicago Branch, A. Ph. A., November 16, 1915.

Certain tests have been made to determine the purity of these oils. One, called the " mixed acid test," is made by mixing equal quantities of nitric and sulphuric acids and shaking two volumes of the mixture with one volume of the oil. If a deeper than canary color results the oil is judged not to be pure. Such a mixture of acids as the above will act upon all petroleum hydrocarbons, even those of the paraffin series. If the strength of the acids and all conditions of making the test are not carefully stated and the test made by a competent chemist, the results will not be useful. The activity of the acids is entirely too drastic. The action of ultra-violet light has also been proposed as a test. This is also too drastic, as exposure to these rays affects all petroleum hydrocarbons. The manufacturing processes necessary to make an oil that is colorless, odorless, tasteless, and free from fluorescence insures the removal of all harmful substances.

Very excellent American oil, in volume equivalent to several million pint bottles, has been marketed during 1915 with completely satisfactory results to the purchasers. There would seem to be no reason why American oil should not forever displace the Russian product. Those who are entrusted with the making of specifications for white oils should remember that the specifications of the pharmacopœias are based on Russian oils. Because Russian oils, only, occupied the field in the beginning, and because it was presumed that such oils could not be manufactured from any other crudes, our developing American industry in this particular field should not be saddled with antiquated specifications in regard to specific gravity and viscosity, but should be given every opportunity to supply its own field on the basis of specifications adapted to American crudes.

THE DEVELOPMENT OF SCIENTIFIC MEDICINE.

An investigation of medical history shows two developmental periods which interlace with each other to some extent. In the early days our ideas of disease and its treatment were quite indefinite and general and were founded, in the main, on hypotheses and theories which had no particular scientific basis. In later years, research and experimentation have furnished the scientific basis for the establishment of various facts and for certain seemingly sound theories in addition. It is true, some of the theories brought forth have been illogical deductions from the facts at hand, others have been formulated as a result of false evidence, improper technic, etc. It is fair to say, however, that medical theories propounded as the result of scientific research are much safer than those originating in the inner recesses of a dreaming mind. It can be said, therefore, that the earlier periods of generalization in medicine have passed, and we are now working in the age when legitimate progress can be made only as a result of careful research and experimentation.—E. F. McCampbell, *Ohio Public Health Journal.*

GREATER COMMUNITY SPIRIT.*

The Baltimore Industrial Survey Report, on page 10, stated that effort may profitably be expended in improving the local demand for local products; that Baltimore manufacturers are supplying but a small part of our home consumption, and that there is a wide gap between local producers and local consumers, tending to produce a feeling of chronic apathy toward local manufacturing enterprises, resulting in discouragement of existing establishments and in neglect of new enterprises. The various trades and civic bodies of Baltimore may very properly individually and in co-operation undertake the work of establishing closer business relations between the manufacturers and merchants of the city, to the end that local effort should receive proper encouragement and stimulation.

By reference to page 53, etc., of the Industrial Survey Report, we find that in general the retail merchants as a class are not reliably informed with respect to, or conversant with, the local industries manufacturing the wares traded in respectively by them, to venture a statement of sufficient weight to merit more than casual consideration.

Coming to the drug business, the report of the Industrial Survey shows that in this particular line there is not so much necessity for special effort to promote a demand for locally-made goods as in many other lines, but I feel that it is most important that the members of these associations be made aware of the conditions as I have outlined them, and exert themselves whenever opportunity offers to promote consumption of home-made goods.

I am convinced that there is more to be considered, and that, taking the drug business as an example of all the classes of retail merchants, much can be accomplished in making retail business more profitable, and hence in promoting the best interests of our city. I have talked with several young druggists just entering the business, and, in response to my question as to their plan for building up a business, have been surprised to note the general dependence on price-cutting for this purpose. I have talked with those who I believe are in a position to know the facts, and am informed that the drug business is not to-day as profitable as it was a few years ago. I have heard on the street comments with regard to price-cutting on the part of the down-town druggists, and the opinion seems to be that there has been a price-cutting war, and that it has progressed so far as to have reached disastrous proportions. For example, I have been told that witch hazel, which, according to the U. S. Pharmacopœia, means 15 percent alcohol, sells regularly at twenty-three cents a pint, and one druggist in this room is selling it at twenty-five cents; the recognized special price has been fifteen cents. Witch hazel, so called, has been sold in Baltimore recently as low as seven and eight cents a pint. but not labelled with the quality. This condition seems to have progressed so far that druggists have to advertise "None sold to dealers." This is evidently a case of druggists living off of each other, instead of off the buying public. This degrades the price, degrades the standard, and undermines confidence. The whole practice of medicine is based on confidence. Half of the relief of the patient is confidence. Would it not be better to exert one's efforts in support of the service rendered by the drug store? Would it not be better if advertisements exploited quality and service? Would it not be better to add a bit to the price figure, if anything, than to make a cut? Is it not possible to maintain the price on stable articles, and to advertise special sales on self-made preparations? Can we not be round-figure men?

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* At the meeting of the Baltimore Retail Druggists' Association and the Local Branch of the American Pharmaceutical Association, held December 13, Mr. Douglass Burnett delivered an address on the subject of a "Greater Community Spirit," from which this article is abstracted.

Mr. Aldred once told a story of a man in the shoe business in New England who had occasion to go to London and open a shoe store. He had determined upon his selling price of shoes at so many shillings, but found that the English people were accustomed to deal always in shillings and pence. His American spirit tempted him to make his price at, say, twenty shillings and no pence, always stating the "no pence." On second thought he felt he might just as well make it six pence, and the result was that all of his prices were so many shillings and six pence. When he had been in business a certain length of time he found that the six pence which had been casually added as a store policy was the one thing that created just the difference between profit and loss.

Of vital importance to the success of any business enterprise, no matter how small or how large, is the question of education along our specific business lines, and then of mutual helpfulness. I think that these two subjects properly worked together will prove effectual remedies for many business troubles.

This educational effort is of direct benefit to the industry in many ways, but in no one way more particularly than in identifying the men permanently with the employers for whom they are now working. How much better is it to have our help satisfied and contented in their work than to have them discontented and continually leaving our employ, opening up competitive stores, price-cutting and demoralizing the business!

There are men here to-night whom I know to have as partners young men who were formerly their clerks.

But it is not only a question of educating the young men—it is one of self-education. I venture to say that in this Association there are comparatively few men who have finished their education on the subject of necessary store accounting. For instance, how many druggists make it a practice to analyze the accounts at sufficient and regular intervals to enable us to know that all of our legitimate expenses are being met out of the business, including the value of the time that we, as owners of our stores, are putting in the business, including the interest charges on the capital that we have invested; that we have in the selling price a sufficient allowance for overhead charges; that such and such a figure is or is not a proper allowance for overhead, and that we are obtaining a surplus of so many percent? Do we make it a practice to mark our goods accordingly with a sufficient margin to accomplish these things? You may say, why the surplus? And the answer is, for the purpose of these improvements that have been talked about. How can a store continue to grow and be successful in its business unless it has means of financing the improvements, such as the white paint that Mr. Lyons has spoken of; the improved show-window displays, the lighting of the store and windows that are such helpful aids to business, and the erection of such show-windows as Mr. Lyons suggested for the Mount Royal Avenue side of that prominent drug store.

There is room for many constructive efforts in every retail business. I would say to the Druggists' Association of Baltimore that, no matter how many or how few committees you may have, or how active or how dormant they may be, you have room for more educational effort to develop the spirit of mutual helpfulness. You have room for more work on the part of a co-operative committee. I would conceive the work of the co-operative committee to be, to supervise and suggest the operations of stores that need help in manifest lines, as, for instance, in the way of improvement in the show-windows, lighting, etc.; to work with The Advertising Club of Baltimore and the Merchants and Manufacturers' Association and other trade organizations in studying the needs of the business; to act as counsellor and guide to those who are disposed to wrong practices, such as price-cutting; and to act in conjunction with the Credit Men's Association to improve the character of business risks in the trade.

I wish I had time to read you an article that appeared in The New York Times of December 5. The Wholesale Men's Furnishing Association found that too many men were failing to discount their bills, and that there were too many receiverships and cases of retail businesses being conducted unprofitably. They formed an Advisory and Adjustment Committee, meeting every Tuesday, and made arrangements for all cases of slow-pay accounts to be reported by the retail merchants, and they have found many cases in which helpful suggestions have resulted in putting the business on a paying basis, so that the merchants could discount their bills and obtain loans from the banks, where otherwise that would be impossible. I am quite sure that a committee of "business doctors" for the drug business who would seriously consider this situation and put active plans in force would be of benefit to the business.

I would like to suggest that your Association offer prizes for the best suggestions for show-window displays, these prizes being open to all of the employees of the Retail Druggists' Association, and that prizes be offered for suggestions of best methods of promoting the business.

I am quite sure that, if your Association will go about these matters constructively and seriously with the object of promoting a better community spirit and a greater active co-operation on the part of the members of the Association, they will not regret the time and trouble spent in the work.

WASTEFUL SAVING.

Modern efficiency methods have upset many old notions about thrift. Time is the one thing that cannot be replaced or regained: the minutes lost are gone forever. A letter in a morning paper illustrates the point. The writer indulges in self-praise because he hunted for a cent he dropped on a subway platform. A companion urged him to let it go and catch the train. He detained his friend, both missed the train, but he found the cent.

These men may have had nothing better to do than hunt for that cent, but if they were losing time that should have been devoted to work or business they were very wasteful. They must have lost five minutes at least, ten minutes of working time for both. Few men work for less than twenty cents an hour, and on that basis it cost more than three cents to find that cent. On this principle factory hands are told not to pick up a nail when they drop one. The nail costs less than the time consumed in picking it up. The old goody-goody stories, such as that of the man who always untied the knots and saved the twine instead of saving time by cutting it when unpacking goods, are out of date. Waste of time is the worst waste of all.—*New York Commercial.*

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in THE JOURNAL, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

OTTO RAUBENHEIMER, Brooklyn, N. Y.

Contributed by the Chairman:

No. 115.

TINCTURA FERRI ACETATIS ÆTHEREA.

Ethereal Tincture of Ferric Acetate.

Tinctura Martis Klaprothii. Klaproth's Tincture of Iron.

(Modification of D. A. B. 111.)

Solution of Ferric Acetate (N. F. IV)	75 mils
Acetic Ether } of each Alcohol }	12.5 mils
To make	100 mils

Mix acetic ether and alcohol and gradually add to the solution of ferric acetate. Keep the product in well-stoppered bottles in a cool place, protected from light.

No. 116.

THEATRICAL COLD CREAM.

Spermaceti	125 Gm.
White Wax	120 Gm.
Liquid Petrolatum	560 Gm.
Sodium Borate	5 Gm.
Distilled Water	190 Gm.
To make	1000 Gm.

Melt spermaceti and wax, add liquid petrolatum, and continue the heat until the mixture is uniform. Dissolve sodium borate in the water and apply sufficient heat to bring this solution to the same temperature of the oily solution. Add the aqueous solution *all at once* into the oily solution and stir until congealed.

It will be noticed that this is a modification of the U. S. P. formula for *Unguentum Aquæ Rosæ,* which has been found highly satisfactory by the writer. During cold weather, the quantity of liquid petrolatum may be slightly increased. This cold cream can be perfumed according to taste by using the very expensive oil of rose or the cheaper oil of geranium or any other suitable perfume, such as terpineol, neroli, ionone, muguet, etc.

No. 117.

GARGARISMA POTASSII CHLORATIS CUM FERRO.

Golden Gargle.

(Jacobi's Gargle.)

Tincture of Ferric Chloride	12 mils
Glycerin	24 mils
Sat. Solut. Potassium Chlorate, a sufficient quantity,	
To make	100 mils

Owing to the alcohol content of the tincture, some of the potassium chlorate crystallizes out. For this reason, the equivalent, about 4 Gm. of Sodium Chlorate, can be used, which, on account of its greater solubility, remains in solution.

No. 118.

PIGMENTUM IODI COMPOSITUM.

Compound Iodine Paint.

(Mandl's Solution.)

Iodine	1.25 Gm.
Potassium Iodide	5.50 Gm.
Oil of Peppermint	0.75 mil
Glycerin, a sufficient quantity,	
To make	100 mils

Used as an antiseptic and stimulant application for the throat.

No. 119.

BLUE WRITING FLUID.

Methylene Blue	1 Gm.
Glycerin	5 mils
Water	500 mils

A cheap and good writing fluid, well adapted as an ink, for writing labels and for fountain pens.

No. 120.

PIGMENTUM MENTHOLIS ET TOLUOL

Menthol and Toluol Paint.

(Loeffler's Solution.)

Menthol	10 Gm.
Alcohol	60 mils
Solution of Ferric Chloride	4 mils
Toluol, a sufficient quantity,	
To make	100 mils

Used as an antiseptic application to the false membrane of diphtheria.

Contributed by M. I. Wilbert:

No. 121.

PINE OIL DISINFECTANT.

(Hygienic Laboratory, U. S. Public Health Service.)

Pine Oil	1000 Gm.
Rosin	400 Gm.
Solution Sodium Hydroxide 25%.	200 Gm.

The pine oil and rosin are heated together in a covered "enamelled ware" pail until the rosin is all dissolved. The mixture is cooled to 80° C., the sodium hydroxide solution added, and the liquid violently stirred or beaten for at least 10 minutes with a rotary "Dover" egg beater. Sufficient water is added to make mixture to the original weight. The preparation is then cooled quickly by placing the pail in cold water. It is stored in glass or metal containers till used.

(Public Health Rep., 1915, vol. 30, p. 3004.)

Pine oil is a mixture of many essential oils of the terpinol family. It is a by-product from the manufacture of wood turpentine, and probably is the substance which prevents the decay of "pitch pine" stumps. For compounding this disinfectant only the oil from the "steam or solvent" process should be used, and not the oil obtained by "destructive distillation." It is an amber-colored liquid, having the characteristic odor of pine wood, and should be perfectly clear, transparent, and free from any considerable sediment. The market price of such pine oil is about 50 cents per gallon.

Contributed by Lorentz Cantor:

No. 122.

EAU DENTIFRICE.

Star Anise	7.5 Gm.
Oil of Peppermint Anethol } of each	1 mil
Red Saunders	1 Gm.
Alcohol	100 mils

Macerate for two weeks, then filter and add sufficient alcohol to make 100 mils.

For use as a mouth wash, take about 10 drops to a tumbler of water.

Contributed by Prof. X:

No. 123.

SOLIDIFIED ALCOHOL.

Alcohol	1000 mils
Stearic Acid	60 Gm.
Sodium Hydroxide	13.5 Gm.

Dissolve the stearic acid in 500 mils of the alcohol. Dissolve the sodium hydroxide in 500 mils of alcohol. Warm each solution to 60° C. Mix them and form into suitable containers which have previously been warmed to 60° C. and allow to solidify.

Denatured alcohol or wood alcohol may be used in place of alcohol to make a cheaper product, and the mixture may be colored, if desired, by the addition of suitable coloring material.

No. 124.

ASTRINGENT AND ANTISEPTIC FOOT POWDER.

Alum, powdered	60 Gm.
Tannic Acid	5 Gm.
Salicylic Acid	2 Gm.
Orris Root, powdered	33 Gm.

Mix them and divide into packages of about 2 Gm. each or make into suitable sized tablets.

No. 125.

BRITISH OIL.

Crude Petroleum	35 mils
Barbadoes Tar	105 mils
Crude Oil of Amber Oil of Juniper of each	140 mils
Linseed Oil	280 mils
Oil of Turpentine, a sufficient quantity,	
To make	1000 mils

Mix them.

Contributed by John K. Thum:

No. 126.

A. C. E. MIXTURE.

(For Anæsthesia.)

Alcohol	1 part
Chloroform	2 parts
Ether	3 parts

(German Hospital, Philadelphia.)

No. 127.

SOLUBLE CRUDE CARBOLIC ACID.

Liquid Soda Soap, No. 128	1000 mils
Crude Carbolic Acid	100 mils

(German Hospital, Philadelphia.)

JOURNAL REVIEW.*

BY J. W. STURMER.

Introductory.—The members of our Philadelphia Branch who attend our meetings are the very members who read the journals. Accordingly, I run the risk of appearing before you to-night with a bundle of "twice-told tales." Being aware of this, I have decided to gather my material from the chemical journals, and from certain foreign journals, rather than from the American pharmaceutical publications, with which my audience is thoroughly familiar.

On the Stability of Glyceryl Nitrate.—Wilbur L. Scoville, in a paper presented at the New Orleans meeting of the American Chemical Society, called attention to the deterioration of the tablet triturates of glyceryl nitrate (nitroglycerin). He found that tablet triturates containing less than 1/100 gr. deteriorated more rapidly than stronger tablets. Secondly, that tablets prepared from the alcoholic solution were less stable than tablets made from a "paste." Thirdly, that glyceryl nitrate which had been kept over several winters, and had been subjected to freezing several times, was more stable than the freshly-made ester.

Kast and also Hibbard have proved that glyceryl nitrate exists in two forms, known respectively as the labile and the stable forms, the former with a melting-point of 2° C., and the latter melting at 13.2° C. Freshly-made glyceryl nitrate is the labile isomeride. Freezing changes this to the stable form—which agrees with Scoville's observations on the deterioration of glyceryl nitrate tablet triturates.—*Journal Industrial and Engineering Chemistry,* December, 1915.

Mucilage for Paraffin Paper.—

Dextrine	30 parts
Rice starch	30 parts
Acetate lacquer	20 parts
Beeswax	20 parts

—*Journal Industrial and Engineering Chemistry,* December, 1915.

Resin-containing Citrus Oils.—R. T. Will, in a paper on the citrus industry of California, calls attention to the use of a volatile solvent (name withheld) in the extraction of oil of lemon and of oil of orange. He claims for this process a much higher yield of oil than by the "hand process," as used in Europe.

The oil extracted by means of the solvent is darker in color and rich in resin. He claims for the oil much greater stability. Samples kept for five years in colorless glass and exposed to air failed to become terebinthinate. The resins serve as a fixative, and retard volatilization; thus this extracted oil goes further as a flavor than does the European oil.—*Journal Industrial and Enginneering Chemistry,* January, 1916.

Marking Porcelain Ware.—S. B. Kuzirian, of the Iowa Agricultural Station, reports in the Journal of Industrial and Engineering Chemistry, January, 1916, that cobalt nitrate is the most satisfactory substance for marking porcelain ware. The dish is heated over a low flame, and, while moderately hot, marked with cobalt nitrate solution. Moderate heating converts nitrate into cobaltic oxide (black), while prolonged heating at a very high temperature may reduce this to cobaltous oxide, which is brown in color.

An Explosive Mixture.—Sodium nitrite explodes with ammonium bromide. This incompatibility was originally published in the Pharmazeutische Zentralhalle, and abstracted by Merck's Report. The reactions given are as follows:

$$NaNO_2 + NH_4Br = NaBr + NH_4NO_2$$
$$NH_4NO_2 = N_2 + 2H_2O$$

The Toxic Isomers of the Cinchona Alkaloids.—Professor Scoville recently called attention to the incompatibility between quinine and aspirin, and this paper has been widely quoted in the pharmaceutical press. In this connection, one should read also the papers published by H. C. Biddle, of the University of California, on the conversion of cinchona alkaloids into toxines, which are really toxic isomers of the natural cinchona alkaloids. Any organic acid is said to produce this change, which is retarded or prevented by the H ions—hence by ionizable mineral acids. The papers are found in the September (1915) number of the Journal of the American Chemical Society.

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* Presented before the Philadelphia Branch of the American Pharmaceutical Association, February 1916.

The Goeldner Test—a Mistake.—The Goeldner test for cocaine was first published in a Russian pharmacy journal, and has reappeared in German and American publications. The test is as follows: 0.01 Gm. resorcinol is mixed with 6 drops sulphuric acid; then a small portion of cocaine hydrochloride is added, producinig a deep-blue coloration which gradually turns to purple, and ultimately purplish-red. L. A. Ryan, of the University of Pennsylvania, has proved that this color reaction depends upon the presence of nitrites or nitrates, with which substances the test is very delicate. Pure cocaine hydrochloride with pure sulphuric acid and pure resorcinol does not give a blue coloration, and, while the test can be used for nitrites and nitrates, it cannot be applied to cocaine. In view of the fact that a simple and reliable coloration test for cocaine is a great desideratum, it is important to give publicity to the correction of Goeldner's mistake.

[Professor LaWall called my attention to the fact that one of his students, Guy Shearer, in 1911, reached the same conclusion reported by Mr. Ryan.]

A "Real" Volatile Oil of Cade.—An oil obtained by steam distillation from *Juniperus oxycedrus* is now on the market, and is said to be similar in therapeutic properties to the empyreumatic oil, obtained by destructive distillation, with which we are all familiar.

A Test for Selenious Acid in Sulphuric Acid.—Ernst Schmidt, in Archiv der Pharmazie, June 27, 1914, describes the following test, for which he claims extraordinary delicacy: He uses 10 Cc. of the acid, and adds to it 0.01 Gm. of codeine phosphate. A bluish coloration results, changing to green. Other codeine salts, as well as morphine salts, produce the same effect.

Purification of Ammonium Salts.—Certain ammonium salts are known to contain impurities, which, in course of time, produce discoloration of these salts. The impurities are removed with great difficulty by ordinary recrystallization. If, however, the ammonium salts are subjected to heating, short of volatilization, the impurities become insoluble, and may be removed by dissolving the salt, filtering, and recrystallizing in the usual manner.—Hinselmann in a German publication, reported in *Chemical Abstracts,* January 10, 1916.

VOLUMETRIC ESTIMATION OF CALCIUM PHOSPHATE.

While acid sodium phosphate can easily be titrated with alkali and phenolphthalein, this method cannot be directly applied to acid calcium phosphate, $CaH_4(PO_4)_2$. When, however, the calcium phosphate is converted into sodium phosphate by means of sodium oxalate, a volumetric estimation of the phosphate is possible. Kolthoff (Pharm. Weekbl.) therefore recommends the following process: A weighed quantity of the calcium salt is dissolved in a small excess of hydrochloric acid, the solution transferred to a measuring flask, diluted with water, and neutralized with sodium hydroxide solution, using methyl orange as indicator. After water is added to the mark, there is added to an aliquot part of the liquid an excess of neutral sodium oxalate solution, and the mixture is titrated with tenth-normal sodium hydroxide solution, using phenolphthalein as indicator. Each cubic centimetre (mil) of sodium hydroxide solution corresponds to 7.1 milligrammes of P_2O_5.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

BALTIMORE.

The February meeting of the Baltimore Branch of the American Pharmaceutical Association was held in the Assembly Hall of Hynson, Westcott and Company's Pharmacy, Wednesday, February 16, 1916.

Mr. James A. Black informed the meeting of the death of Dr. Hynson's sister, and gave that as the reason for his absence from the meeting. He was questioned as to the advisability of adjourning the meeting out of respect and as an outward sign of sympathy with Dr. Hynson, but, after discussing the question for a while, it was thought best, in view of Dr. Hynson's broadmindedness, to continue the meeting. A resolution offered by Mr. Black was passed directing the secretary to write Dr. Hynson a letter of sympathy and condolence.

Two resignations from chairmanships of committees were considered and were held over till the next meeting, one consenting to hold his till then and the other waiting on a report from Dr. Hynson, who was endeavoring to get the consent of a desirable member for it.

The Branch approved the creation of a social committee, notice of which had been given at the January meeting, and Miss Annie M. Patterson was elected chairman, she preferring this title to that of chairwoman, as she considered the latter appellation sounded too much like charwoman. The pharmacisters were appointed as the other members.

A bill presented to the state legislature, prohibiting druggists from prescribing except in cases of great emergency, and hedging them about with onerous and humiliating restrictions, was discussed, and the secretary was instructed to write the Committee on Hygiene, to which the bill had been referred, voicing the Branch's disapproval of the bill, an action which the Retail Druggists' Association had already taken on the preceding Monday.

The prescription presented by Mr. Meyer at the November meeting and calling for: copaiba 4 drachms, balsam Peru 2 drachms, oil turpentine 2 drachms, and syrup lemon sufficient to make 6 ounces, in which the balsam Peru was the disturbing factor, was shown as a good emulsion, which was made by the addition of 2 drachms of sweet almond oil to the copaiba and oil turpentine; this was emulsified with 4 drachms acacia and 6 drachms water. The balsam Peru was added to this primary emulsion and thoroughly incorporated, adding finally the syrup lemon.

The secretary was directed to endeavor to arrange for a stereopticon lecture on vaccines and serums by Dr. Beavers to be held in conjunction with the Retail Druggists' Association and to take the place of the March meeting.

Mr. Meyer was requested to arrange with the Druggists' Association for the lecture which it was planned to give in its meeting-room in one of the downtown hotels.

The pharmacisters reviewed the journals and quite a few articles were considered and some discussed.

One of the articles considered stated that when tincture strophanthus is mixed with water hydrolysis takes place and a toxic compound is formed, therefore it was thought best that the tincture should not be prescribed in aqueous mixtures, but should be diluted just before administering it.

Tincture lavender compound was stated to be an excellent disguise for valerian, and oil lavender was mentioned as very good for removing the odor of valerian from mortars, especially of pills of the three valerates. The oil was also recommended for masking the odor of cooking cabbage.

Sun-cholera mixture in which the tincture opium was replaced by tincture gambir compound was proposed as an efficient non-narcotic cholera mixture.

Wm. J. Lowry, Jr., Secretary.

CHICAGO.

The Chicago Branch of the American Pharmaceutical Association celebrated its tenth anniversary Friday evening, February 18, at the Hotel LaSalle.

A large company of the members, many of them accompanied by their wives or friends, sat at table from 6.30 until 8.00 and enjoyed a fine repast. Among those present were Thomas Potts, secretary, N. A. R. D.; H. C. Christensen, secretary, N. A. B. P.; Jahn Chawtal, president, C. R. D. A.; Mrs. Forbrich, chairman, W. O. C. R. D. A.; John Blocki, secretary, C. V. D. A.; Leo Mrazek, president, Illinois Board of Pharmacy; P. A. Mandabach, secretary, N. A. D. C.; J. H. Beal, chairman, H. M. Whelpley, secretary, and F. W. Meissner, member of the Board of Trustees of the U. S. Pharmacopœia; W. B. Day, general secretary, A. Ph. A., and Hugh Craig, president, Chicago Branch, A. Ph. A.

After dinner the audience assembled in one of the large parlors, where Dr. H. M. Whelpley presented an illustrated lecture on "Some Historical Features of the American Pharmaceutical Association." The hundred pictures were very fine, many of them from snapshots taken by Dr. Whelpley during his attendance at the last thirty-three conventions of the Association. Many of the pictures had been colored by Mrs. Whelpley.

Dr. Whelpley showed pictures of nearly all of the ex-presidents of the Association, beginning with Daniel B. Smith, the first president, elected in 1852, and including William Procter, William J. M. Gordon, Frederick Stearns, Edward Parrish, E. H. Sargent, Enno Sander, A. E. Ebert, J. F. Hancock, C. Lewis Diehl, William Saunders, of London, Canada; P. W. Bedford, J. U. Lloyd, J. P. Remington, H. M. Whelpley, C. E. Dohme, A. B. Prescott, Oscar Oldberg, etc., and, of the honorary presidents, P. C. Candidus, S. A. D. Sheppard, Ewen McIntyre, and Henry Biroth.

There were shown also many very interesting incidents connected with some of these men. For instance, a file of prescriptions from William Procter's store, held by a long wire, on which prescriptions Nos. 1 to 3000 were impaled; also a number of photographs of individual prescriptions, showing the prices: one ounce tincture of digitalis, 6 cents; a six-ounce mixture, 23 cents; a dozen of pills, 12 cents, etc. There was exhibited a picture of Professor Hallberg in his home with his family, Mrs. Hallberg and his only son, Carl. Carl was present at the meeting—a tall, strapping fellow, just finishing his second year of a college course in engineering. There were a number of pictures of Dr. Beal and other famous pharmaceutical fishermen with their respective marvellous catches; also pictures of beautiful natural scenery caught on the various excursions and pleasure trips in connection with the conventions.

The lecture was very inspiring. Younger members of the Association, and older ones, too, expressed themselves as determined to put the Chicago Branch of the Association just where it belonged—at the forefront of the local pharmaceutical societies.

Announcement was made on the invitations that the Chicago Branch wants the parent Association to come to Chicago for its 1918 convention. This announcement created much enthusiasm, and plans are being laid to bring the convention here for that year.

E. N. Gathercoal, Secretary.

DENVER.

The February meeting of the Denver Branch of the American Pharmaceutical Association was held at the Adams Hotel, February 15. The usual dinner preceded the meeting. The following members were present: P. A. Chedister, E. L. Scholtz, John Dow, H. C. Watson, L. A. Jeancon, Charles J. Clayton, William Beukma, S. T. Kostitch. John A. Martin, F. W. Nitardy, A. Swoboda, R. H. McKinzie, V. Lagasse, John Best, A. L. Pillsbury, A. W. Clark, Mr. Neuburn, F. J. Lord, M. P. Given, W. T. Hover and W. A. Hover

After the reading and approval of the minutes, President Hover announced the appointment of the following committees:

Membership: Lincoln Wilson, chairman; R. G. Watson, Adolph Swoboda.

Program: F. W. Nitardy, chairman; C. D. Charles, M. M. Becker.

Education: H. C. Washburn, Charles J. Clayton, William Beukma.

Legislation: A. W. Clark, Hugh SeCheverall, E. L. Scholtz.

The question of Associate Membership was then brought up and, on motion by Mr. Clayton, it was decided to make provisions in the By-laws for this form of membership. Some discussion on the question took place, which was participated in by Messrs. Swoboda, Best, Clayton, Lord, McKinzie, Lagasse, Scholtz and Watson.

Mr. Clayton was appointed to draft a suitable amendment to be presented at the next meeting.

A resolution in reference to revoking the license of registered pharmacists for the violation of a prohibition law was then offered by the secretary. After some discussion and change in wording it was adopted in the following form:

"WHEREAS, Violations of the prohibition law by persons running or claiming to run drug stores cause public feeling and sentiment detrimental to the interest of pharmacy; and

"WHEREAS, All true pharmacists are desirous of complying with this law in letter and spirit; be it

"*Resolved,* by the Denver Branch of the American Pharmaceutical Association, That we recommend the revocation of the license of registration by the Board of Pharmacy in all cases where a person has been convicted the second time for the illegal sale of intoxicating liquors."

The secretary was instructed to forward a copy of this resolution to the secretary of the City Association, State Association, State Board of Pharmacy, County Medical Association, also to Governor Carlson, the Attorney-General, and give it out to the press.

It was then announced that the evening papers published a story of an arrest of a druggist for selling bathing alcohol, denatured according to the government formula. In the discussion which ensued the suggestion that a more careful labelling of this product and, possibly, a formula more desirable than the ones generally used now could be found. As brought out by President Hover in harmony with this suggestion it was decided to appoint a committee to frame a label for denatured alcohol to be used for bathing purposes, and investigate the formulas and report their findings at the earliest possible moment to the Executive Committee of the Branch. As it was thought advisable to take action on this matter before the next meeting, Mr. Hover thereupon appointed F. W. Nitardy, Charles J. Clayton and L. A. Jeancon to act in this capacity.

Mr. Clark stated that in a recent conversation with the internal revenue collector he had been told that any formula using denaturing agents in quantities not less than those specified by the government formula would be satisfactory to the Federal Government.

Some further discussion followed, and Mr. Hover suggested that the report of this committee could be printed and circularized by the jobbers of Denver and thereby receive wide publicity.

The question of how poisonous or injurious the denatured alcohol consisting of one part of formaldehyde in 250 parts of ethyl alcohol would be was discussed at some length.

The question of permanent quarters for the pharmaceutical interests of the city and state was then discussed by Messrs. Clark, Nitardy, Clayton, Scholtz, and others, but it was decided to postpone action until a future date.

The question of prescription profits was then taken up. President Hover, speaking of the discussion started by the investigation along this line carried on last summer for the State Association, and a report on the prescription department read at the convention of the National Association of Wholesale Druggists, and the wide publicity received by these reports in pharmaceutical journals and recently commented on in the lay press, stated that from the jobbers' viewpoint, it seemed that the prescription departments in stores doing a limited prescription business frequently represent an investment by no means justified by the returns of this department, and the advisability of such stores discontinuing their prescription service was suggested. Messrs. Clayton, Clark, Dow, Watson, Scholtz, and others, however, expressed themselves that any retailer, regardless of how small his profits may be from the prescription department, or even if he knew the same was an absolute loss to him, would not be willing to give up this department, because it constitutes what may be called the "life" of the drug business. Without it the place would no longer be a drug store.

After the close of the discussion on this subject, President Hover, in speaking of the price situation, read a series of prices on familiar drugs prevailing in 1871, which in many instances were similar to, and higher than, the present high prices, commonly thought of as higher than any that have ever prevailed in the past. Mr. Hover suggested that this was an opportune time for retailers to raise their selling prices on various articles of drug-store merchandise, including proprietaries, on which prices to them had been raised; many things being sold at the present time without profit or at actual loss by retailers who are not watching their costs closely.

The question of prescription prices and rules for pricing prescriptions, average prices obtained and that would be obtained when certain rules would be followed, were discussed at considerable length, most of those present participating. The consensus of opinion seemed that the N. A. R. D. price schedule, if carefully followed, would yield a retail price on prescriptions which would mean a fair profit to the pharmacist and yield a better price than generally obtained in Denver at the present time. The rule of doubling the cost of ingredients and adding a compounding fee was also discussed and considered feasible, with a minimum scale for certain classes of prescriptions when using a smaller percentage of profit in figuring the price of very expensive prescriptions.

F. W. Nitardy, Secretary.

DETROIT.

The February meeting of the Detroit Branch of the American Pharmaceutical Association was held Friday evening, February 18, at the Wayne County Medical Society Building. President Scoville called the meeting to order.

Mr. Arthur L. Buzzell gave a talk on the requirements of the Harrison Anti-narcotic Law, explaining recent rulings made by the Department of the Interior. A very interesting discussion followed, which cleared up, in the minds of those present, many points not previously understood.

The next paper was by Mr. John H. Webster on the Stevens Price Maintenance Bill. After the reading of the paper a discussion followed, at the close of which the sense of the meeting was shown by a resolution, unanimously adopted, supporting the Stevens bill.

President Scoville offered the thanks of the meeting to the speakers.

A. A. Wheeler, Secretary.

NASHVILLE.

The regular monthly meeting of the Nashville Branch of the American Pharmaceutical Association was held on February 17, in the Music Room of the Nashville Y. M. C. A., in joint session with the Nashville Drug Club. Dr. J. O. Burge presided.

After the reading and approval of the minutes, the Committee on Nominations reported the following for officers of the ensuing year and they were elected: President, E. A. Ruddiman; vice-president, L. S. Pully; treasurer, C. C. Young, and secretary, William R. White. Dr. Ruddiman, however, could not accept the office of president on account of other duties, and Dr. J. O. Burge was unanimously elected in his stead.

Mr. J. E. Justice, of Clarksville, Tenn., a member of the State Board of Pharmacy, was then introduced and addressed the Branch on "Pharmaceutical Conditions." He laid special stress on the high price of drugs, and offered some helpful suggestions for educating the public on the cause of the present conditions.

A general discussion of the subject was participated in by the members, resulting in the appointment of a Joint Publicity Committee from the two associations. The purpose of the committee is to inform the public, through the press, of the unusual conditions which affect the prices of drugs and chemicals. D. S. Sanders and William R. White were named as members of the committee.

The subject of "Whether Picture-show Advertising Pays" was discussed by D. J. Kuhn, D. S. Sanders, J. B. Sands, and others. The question of whether prescriptions should be marked in the N. A. R. D. cost-mark or in plain figures in ink was then argued, both *pro* and *con*. A poll disclosed that the N. A. R. D. plan was generally adopted.

William R. White, Secretary.

NEW YORK.

The February meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Lascoff, at 8.40 o'clock on the evening of the 14th.

Secretary Hostmann being absent, the Chair requested Frank L. McCartney to act in his stead.

The minutes of the January meeting were then read and approved.

The treasurer's report was read and accepted with thanks.

Dr. Anderson, chairman of the Committee on Education and Legislation, was absent, but Drs. Manfield and Weinstein reported on proposed state legislation.

No reports were made by the Committees on Progress of Pharmacy or Fraternal Relations, as Drs. Diekman and Diner were both absent.

Frank L. McCartney, chairman of the Membership Committee, reported the following applications for membership in the parent association: Franklin Black, 81 Maiden Lane, New York City; Dwight T. Scott, care of National Vaccine Company, Washington, D. C.; George Simon, 135 William Street, New York City; Harry A. Stebbins, 145 Front Street, New York City; Lawrence N. Upjohn, M.D., 48 Vesey Street, New York City; Edward Zink, 203 Fulton Street, New York City; Adolph Wolf Lerner, 556 Quincy Street, Brooklyn, N. Y.; Nestor Petillo, 57–59 Perry Street, New York City; N. C. Partos, 160 Second Avenue, New York City; Alirio Diaz Guerra, M.D., 29 Polhemus Place, Brooklyn, N. Y.; Chanon A. Bernstein, 3146 Broadway, New York City; Clarence E. Wright, 435 West 119th Street, New York City; Anthony Di Bella, 1431 Boscobel Avenue, New York City. And for membership in the New York Branch only: Charles W. Holzhauer, Broad and Market Streets, Newark, N. J.; Charles Holzhauer, Broad and Market Streets, Newark, N. J.

He then appointed the following committee to assist him in obtaining new members: H. V. Arny, Turner F. Currens, St. Claire Ransford Gay, Charles W. Holzhauer, Gustave Horstmann, Hugo Kantrowitz, Joseph L. Mayer, C. A. Mayo, Romaine Pierson, Otto Raubenheimer, George T. Riefflin, and Hugo H. Schaefer.

The speaker of the evening, Mrs. St. Claire Ransford Gay, was then introduced, and read a paper, entitled "X-ray Cases in Which Barium Sulphate is Contra-indicated."

A lengthy discussion followed, in which Drs. Mayer, Roon, Weinstein, and Schaefer participated.

Mrs. Gay was given a rising vote of thanks, the meeting then adjourning at 10.05 P.M.

FRANK L. MCCARTNEY, *Secretary Pro Tem.*

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held on Tuesday evening, February 8, 1916, at the Philadelphia College of Pharmacy.

In the absence of President Henry, Vice-President Sturmer called the meeting to order at 8.45 P.M.

The following committee has been appointed to help arrange entertainment for the A. Ph. A. members during the Atlantic City meeting: W. L. Cliffe, chairman; E. Fullerton Cook, C. Mahlon Kline, H. K. Mulford, F. M. Apple, and President Samuel C. Henry, *ex-officio.*

Under the head of new business, Mr. England moved that President Henry be empowered to appoint a nominating committee at his leisure and to instruct it to prepare a list of new officers to be balloted upon at the March meeting.

The motion was seconded and when put to vote, carried.

Mr. Cliffe moved that President Henry be instructed to appoint a committee, with power to act, to draw up a set of resolutions concerning the bill now before Congress in regard to the construction of a memorial to Professor Procter, and to forward them to the proper authorities at Washington. This motion was likewise seconded and passed.

Professor Remington then introduced Professor Eberle to the audience. He responded with remarks to the effect that he was becoming acclimated and that the work of the JOURNAL was progressing smoothly.

Mr. Hugo Kantrowitz, of the Apotheker Zeitung, of New York, was then introduced and stated that, although he was not a strong public speaker, he did have a very strong feeling of friendliness for the A. Ph. A. and for the Philadelphia Branch.

The evening's program was then taken up and Professor Sturmer presented "The Review of Current Pharmaceutical Literature." The author stated that, rather than review the pharmaceutical literature, which was undoubtedly read by most of those present, he had abstracted several articles from the chemical and foreign journals of pharmaceutical interest.

This paper was discussed by Charles H. La Wall, E. Fullerton Cook, F. Atlee Dean, and W. L. Cliffe.

Prof. Otto Raubenheimer, who was to come from Brooklyn to discuss "The Recipe Book of the A. Ph. A.," was delayed, and the interval was utilized by Professor Remington in relating a few interesting incidents that occurred in some of the past meetings of the Deutscher Apotheker Verein of New York.

Professor Raubenheimer here entered with words of praise for the Reading trains which leave on the hour and arrive on the hour—sometimes.

In his address Professor Raubenheimer related numerous incidents from his own experiences, emphasizing the need of a reliable and comprehensive recipe book whose publication was authorized by the A. Ph. A. at the 1915 meeting, a standing committee of fifteen being appointed, with Professor Raubenheimer as chairman.

The idea of the committee is to divide the volume into several chapters, somewhat as follows: Chapter 1—Formulæ deleted from U. S. P. and N. F. Chapter 2—Formulæ from foreign pharmacopœias. Chapter 3—Hospital formulæ. Chapter 4—Formulæ named after their originators. Chapter 5—Reagents and stains. Chapter 6—Formulæ for toilet articles, cosmetics, perfumes, and dentifrices. Chapter 7—Technical formulæ—photographic — disinfectant—insecticidal. Chapter 8—Agricultural formulæ. Chapter 9—Veterinary formulæ. Chapter 10—Formulæ for beverages and syrups.

In conclusion Professor Raubeinheimer stated that the work was somewhat hampered by lack of funds, for as yet no appropriation had been made by the Council of the A. Ph. A. for stationery, binders, etc., and that as yet nothing had been definitely decided upon, but that he was almost ready to begin publishing formulæ in the JOURNAL for suggestions and criticisms.

DISCUSSION.

Professor Remington: "I believe that the scope of this work should be quite comprehensive, as the scope of a recipe book must needs be if it is to be of any practical use. The insertion of formulæ from foreign pharmacopœias is an excellent idea and will tend to greatly increase the utility of the work. I might suggest that Professor Eberle permanently set aside a page of the JOURNAL, under some such heading as 'Proposed Formulæ for the New Recipe Book,' and that the formulæ be thus published for criticism and correction. I would advise the committee to put forth every effort to get the original formula from its source, or as near the source as possible, as nearly every formula much in demand has a multitude of variations."

Professor Eberle: "I would think that lists of formulæ in demand in the different parts of the United States would make a valuable beginning for the work."

Professor Fischelis: "Such a list as Professor Eberle suggests could be obtained from the query editor of the various pharmaceutical journals. Although the book itself must be somewhat limited as to contents, I see no reason why the index should be so restricted. I believe that the value of the book would be greatly enhanced if the index were to be very complete, and, in cases where the formulæ were not published in the recipe book, to give references to the various journals and other publications where they could be found."

J. Atlee Dean: "If the work were to include formulæ for stains, I think it would be a step in the right direction if in place of specifying saturated solution of various materials, as is much in vogue in present-day formulæ, a definite amount of the material dissolved in a definite amount of solvent be called for."

Professor LaWall: "I think the committee will meet with hearty coöperation along the lines of criticism and experimentation when they begin to publish the proposed formulæ. Although not a member of the committee, I would be glad to render any experimental assistance that I might be called upon to perform, and I also believe that abundant financial assistance will be forthcoming as soon as the council gets the new N. F. published."

Mr. England: "I believe that the book should be comprehensive, but that it should not contain too many technical formulæ nor too much dead wood. Professor Eberle might be able to assist Professor Raubenheimer in mimeographing, etc., for the time being, and if Professor Raubenheimer asks the Council for a modest appropriation I am sure that it will be forthcoming."

Mr. Beringer: "The works of McEwan, Dietrich, and Hager should serve as valuable guides to the committee that has this work in charge. I would advise the committee, in selecting formulæ, to be particularly careful to avoid those protected by a United States patent."

Professor Cook: "As the committee consists of fifteen members, I would suggest that each member try four formulæ each year, and thus the book could be compiled at the rate of sixty formulæ per year."

Professor Raubenheimer: "One of the most important things for the committee to decide is, shall the book be one such as I have outlined, or shall it be strictly pharmaceutical, containing galenical formulæ only? I am not satisfied with the present proposed name of the volume, and think that the 'A. Ph. A. Formulæ Book' would be more appropriate, but that question can rest until the Atlantic City meeting."

A vote of thanks was given Professor Raubenheimer, after which the meeting adjourned.

J. Ed. Brewer, Secretary.

SAN FRANCISCO.

The San Francisco Branch of the American Pharmaceutical Association met February 10, 1916, in the office of the Pacific Pharmacist. President J. L. Lengfeld presided.

The transaction of routine business was followed by an interesting discussion on liquid disinfectants. The particular preparation considered was the Hygienic Laboratory Pine-oil Disinfectant, as described by Albert F. Stevenson in the Public Health Reports of October, 1915. This disinfectant is prepared by heating a freshly-distilled pine oil, obtained as a by-product by the steam or solvent process from the manufacture of wood turpentine, with good, strained, North Carolina, Grade E rosin, and lastly adding a certain amount of solution of sodium hydroxide. The phenol coefficient claimed for this preparation is about 3.5.

Mr. C. W. Twining enlightened the members on the several points regarding the preparation and uses of the culture of *Bacillus bulgaricus.*

The old question of counter prescribing was brought up. Dr. A. S. Musante gave it as his opinion that the medical profession is only too anxious to help the true pharmacist, and would turn with disgust from the person who considered himself capable to diagnose and prescribe after a few years' study in pharmacy. The limits of the two professions were clearly defined.

Other topics discussed during the evening were antitetanic powder, electrargol, electrocuprol, and salol in soft capsules. The lateness of the hour made it necessary to postpone the demonstration of the filling of soft gelatine capsules to the March meeting. In addition to this, the many formulas for the preparation of Blaud powder and Vallet mass will be considered.

It is important that the members note the change in the meeting night from the second Tuesday to the second Thursday.

The Branch will meet again on March 9, 1916, at 8 o'clock, 723 Pacific Building.

Clarissa M. Roehr, Secretary.

CITY OF WASHINGTON.

The February meeting of the City of Washington Branch of the American Pharmaceutical Association was held at the National College of Pharmacy, Washington, Tuesday, February 23, 1916.

The subject of the evening was a talk on the increase of prices for drugs and chemicals, the cause and effects, together with the future prospects, by Mr. Wymond H. Bradbury, assisted by M. I. Wilbert.

Mr. Bradbury discussed the subject very fully and brought out many points of interest. He clearly showed that the first rise in prices of drugs and chemicals was due directly to the disturbance in Europe and the general opinion that the war would last but a year, the result being that when hostilities broke out large manufacturers at once purchased their supplies for a year. At the expiration of this time, when their stocks were running low, they went again into the market, buying heavily everything obtainable, with the effect that prices again soared, thus marking two separate and distinct, decided advances.

He further showed that by reason of the embargoes all drugs grown in the restricted districts were not obtainable; likewise this is true of chemicals made abroad, many of which have never been made in America. Imports are difficult; high insurance rates on cargoes and no available ships, with exports practically cut off and large demands from abroad, have assisted in the advance of domestic-made goods.

Many commodities are controlled by second hands, who are holding for large increases. The potassium situation is a serious one and may result in the replacing of all potassium salts with sodium. The large increase in price of bromides is due principally to the increased demand for bromine in the manufacture of gas bombs. Many chemicals as well as foreign-grown drugs are now unobtainable, or the price is prohibitive.

The increase in price of sulphuric acid, soda ash, and many other products has caused material increase in price of glassware and other manufactured products. He pointed out that 10 percent of the glycerin made in America was used by the DuPont Powder Works. At the present time American manufacturers are refusing to sell the product for dynamite manufacture. Zinc and copper and their salts have increased, owing to their use in war materials.

The probable future will be that the abnormal prices will drop, owing to increased growing and manufacturing by the countries now at war, but no such low prices as prevailed before the war can be expected for years. Many products, especially trademarked goods, will never return to their former basis. The general cut in price for these articles by the retail trade has shown the manufacturer that he can increase his price and still the public will obtain the goods at less than his advertised price, owing to the cut-rate evil.

He also pointed out the possibility of the placing of export duties on many products by foreign countries, and government control of many drugs, thereby maintaining higher prices than before the war. This is shown by the action of Mexico with reference to vanilla, and Great Britain with sandal and buchu.

He maintained that, while the retailer had been affected, he was not as seriously affected as the manufacturer and wholesaler.

The attendance at this meeting was larger than usual, and the paper was discussed at some length by those present. It was pointed out by Mr. Wilbert that we in America were much better off than many foreign countries where many articles were unobtainable or at prices much higher than in this country. He also showed that agents in this country of German houses were now making many of the products, and, while obtaining advanced prices, they, at the same time, are keeping the market for the German manufacturers so that when the war ends they will not have to reëstablish their business in this country.

He further pointed out that much more manufacturing would be carried on if the manufacturers were assured that they would receive some kind of protection. Politics here is playing an important part.

The condition now existing has resulted in the market being flooded with all kinds of fake goods, principally by peddlers who are working all kinds of schemes, so that it is dangerous to purchase any products from any but legitimate dealers unless every lot and package is carefully tested.

The Sheppard Prohibition Bill for the District of Columbia, now pending in Congress, was taken up and discussed fully. This bill prohibits absolutely the sale of pure grain alcohol in every way, even on physicians' prescriptions; prevents common carriers from bringing it or delivering it in the District of Columbia; restricts the sale to five wholesale dealers under strict supervision, and allows the purchase only for scientific purposes in quantities not to exceed five gallons; the Federal Government, colleges, hospitals, scientific and public institutions are not excepted in any way.

The Branch absolutely refused to enter into the prohibition question in any way, but took decided action with reference to the clauses pertaining to pure grain alcohol for scientific, medicinal, or mechanical purposes, and appointed a committee to draft proper memorials to be presented to Congress. Messrs. Fuller, Flemer, and Bradbury comprise the committee.

S. L. Hilton, Secretary.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 13.

PHILADELPHIA, PA., December 16, 1915.

To the Members of the Council:

GENTLEMEN:

Motions No. 19 (*Executive Committee of the Council*), *No.* 20 (*On the Financial Affairs of the Association*), *No.* 25 (*Expunging Discussion on Discontinuance of Prof. C. Lewis Diehl as Reporter on the Progress of Pharmacy from Published Minutes in Journal*), *No.* 26 (*Expunging Discussion from Minutes Published in Journal on Financial Affairs of the Association*), *No.* 27 (*Election of Members; Applications Nos*: 22 *to* 32 *inclusive*), and *No.* 28 (*Approval of Budget of Appropriations for* 1916) have each received a majority of affirmative votes.

A protest has been received from H. P. Hynson on Motion No. 23 (Adoption of Substituted N. A. R. D. Resolutions) that it is out of order, as the subject of the motion has been already considered by the Council and disposed of under Motion No. 18 (Council Letter No. 8, p. 23). The protest was referred to Chairman Eberle, who decides that:

"Motion No. 23 is in order. The Council referred or committed Motion No. 18 (N. A. R. D. Resolutions). Mr Freericks comes with resolutions of his motion for action by the Council; namely, to adopt or reject or instruct a committee in the performance of work committed to them. After a careful study I hold that Mr. Hynson's reference does not govern the question involved."

The following communication has been received from Frank H. Freericks (December 9):

"With reference to Council Letter No. 12 and copy of communication from Professor Remington, I beg you to send to Council members the following comments from me, no matter what circumstances may arise:

"May I submit with the best of good-will to all concerned that Professor Scoville was without authority to ask Professor Remington to state to Council the reasons for deleting whisky and brandy. In a matter under consideration by the Council its members are entitled to come to a conclusion without the pressure of outside influence. If any member of Council may take it upon himself to ask expressions of opinion, explanation, or information from outside sources, which are to influence the opinion of the Council members in reaching a decision on any question before it, then some of the parties concerned are invariably subjected to a disadvantage. If light from those who are not members of the Council was deemed necessary, it should have been requested by action of the Council itself in the regular manner. I do not for a moment deny the helpfulness and value of any opinion which we may be able to secure from Professor Remington, but, since the matter involves a question which I submitted to Council for its action, I am somewhat weighed down with the rather unequal task thus imposed upon me, granting, of course, that at any and all times the Council can extend the privileges of the floor to those who are not members. In my judgment, no person living has better right to be heard or to express opinion in any matter concerning the American Pharmaceutical Association than has Professor Remington, regardless of where such matters may be under consideration, but it is clear to me that, in this instance, Professor Remington would not have expressed an opinion and would not have entered into explanation had he not been requested to do so.

"The matter discussed by Professor Remington is now before Council on my motion. His criticism applies with its fullest force to me, though I do not believe that he knew such to be the case, and this only emphasizes the unfairness of calling for expressions from those who are not possessed of all of the facts.

"I do not undertake to speak for any one but myself, and do not claim to know the reason, or lack of reason, which may have prompted the third resolution of the N. A. R. D., to which Professor Remington refers, but I do know the reasons which prompted me to offer said resolutions for adoption by Council as coming from me, and my reason was plainly stated when I undertook to offer it. It was offered without vindictiveness; not in the heat of argument, and plainly negatives, without even the slightest hint, any moral turpitude. In a word, the 'rumors' referred to were plainly stated to be that the Revision Committee had decided upon a deletion of brandy and whisky in order to serve the cause of Prohibition. I said then, and I say even more emphatically now, that the Revision Committee and the pharmacists of the country represented by it cannot in self-respect allow it to be publicly understood that brandy and whisky were deleted from the Pharmacopœia to further and serve the cause of Prohibition. If such inference may be drawn from statements made by any member of the Revision Committee, then those who are responsible for the Pharmacopœia owe it to themselves and owe it to pharmacy and medicine to make publicly known that such has not been the reason. In order that there may be no question about the existence of such 'rumors,' and in order that I cannot possibly be misunderstood as to the rumors referred to by me, I would say that some day in June, evidently while Dr. Wiley was passing through Cincinnati, he was interviewed by the Cincinnati Post, and there appeared in it as coming from Dr. Wiley a statement to the effect that the deletion of brandy and whisky had been decided upon because there was no legitimate use for them in medicine, and the impression was plainly conveyed that such deletion was another victory for Prohibition. I have tried to find the article in question, but to this moment have not succeeded, though I have no doubt about my recollection with reference to it. The article must have appeared in the Cincinnati paper during the middle of June, and very shortly after deletion had been decided upon by the Revision Committee. Again, under date of July 10, in the Chicago Tribune, Dr. Wiley was quoted as seeking 'Revenue Bureau confirmation for an assertion that druggists would have to take out a saloon license if they would dispense brandy or whisky, *for it could not longer be sold as a medicine.*'

"Now, as to the reasons which Professor Remington gives as having prompted deletion: It has always been my understanding that President Taft, either with or without authority, as the case may be, undertook to promulgate a standard for whisky on the ground primarily that whisky was not only a drug and medicine, but that its use was even more general as a beverage. Either by expression or by inference, he made plain that this decision was concerned with whisky as a beverage. Plainly he did not mean to change the standard, and did not change the standard, and would be altogether without authority to change the standard for whisky when sold as a drug or for pharmaceutical purposes. Plainly the standard laid down in the Pharmacopœia is not null and void, but there has been added another standard which is to govern when whisky is sold as a beverage. Any pharmacist who dispenses or uses pharmaceutically the brandy or whisky of U. S. P. standard will always be protected and found to be within the law. The standard as decided upon by President Taft for whisky as a beverage has even no necessary force for that purpose in the several states, and the several states may and have adhered to the U. S. P. standard. In Prohibition states, where brandy and whisky may not be manufactured and sold as a beverage, and where it may be sold only as a drug and used pharmaceutically, it is not possible to have a standard other than that laid down in the Pharmacopœia, and it is particularly in those states where a standard is necessary.

"Assuming, however, that the reasons which are stated to have prompted the Revision Committee control to the fullest extent, it cannot be denied that there are a number of ways open to the Revision Committee and to the National Formulary Committee for deciding upon standards which will and must invariably be recognized when the articles in question are to be used medicinally or pharmaceutically, and that is the only concern to pharmacists as such. If but one standard is desirable, it can be stated in connection therewith that it is the standard for brandy or for whisky respectively when sold as a drug or used pharmaceutically, or some word can be added to the title indicating medicinal or pharmaceutical use, so that when sold under such titles the standard laid down will apply.

"In this connection I do not assume to give advice, but would point out only that every objection which has been raised can be reasonably met. The fact remains that a majority of the Revision Committee favor the inclusion of brandy and whisky; that only on the ground of disagreement as to standard was deletion decided upon by a bare majority, and plainly under some misapprehension of facts; that in truth and for all practical purposes it will not be more difficult to decide upon a standard than it is with reference to a standard for any other article regarding which there may be difference of opinion; and, finally, it is plainly evident that a vast number of pharmacists throughout the country believe that the Pharmacopœia, or, if not it, then the National Formulary, should contain a standard for said articles.

" In conclusion, I submit for consideration to members of the Council that no one can have greater respect and higher regard and esteem for Professor Remington than I have, but this communication plainly evidences that he was asked to express an opinion without having presented to him all of the facts. His criticism is plainly directed toward a condition which does not in the least apply with reference to my motion in offering the resolutions for adoption, and, therefore, I do hope and trust that you will not be controlled by his indirect request to vote against the motion which I have submitted.

" This is not a question of men or their relative merits; it is purely and alone a question of principle. Upon its proper decision rests the possible contingency of having the Pharmacopœia regarded as a work subject to the whim and petty prejudices of some, or of having it regarded by the public as a book of light, sanity and truth, pharmaceutically speaking."

The following communication has been received from George M. Beringer (December 13):

" As a member of the Committee of Revision of the U. S. P. to whom was referred the duty of preparing the monographs for whisky and brandy, I have heretofore refrained from public discussion of the pharmacopœial standards for these or the reasons for the deletion of these titles. Since it appears that the Council of the American Pharmaceutical Association is to become the forum for the discussion of these questions and for the presentation of statements, it now becomes my duty to plainly present certain facts so that the judgment of the Council may not be perverted or misleading, and *ex parte* statements be published in the records of the American Pharmaceutical Association as expressing its opinion.

" The communication from Prof. Joseph P. Remington in Council Letter No. 12, despite its form and appearance on pharmacopœial stationery, must be accepted only as his personal opinion. The Committee on National Formulary had no authority to request such a statement. I have no knowledge of such a request coming before the Executive Committee or the General Committee of Revision of the U. S. P., and if not authorized by these or by the Board of Trustees of the U. S. P., it must be viewed as a personal and not as an official statement from the Revision Committee.

" The Committee on National Formulary is justified in explaining why these titles should not be included in the standards of the Formulary, and an intelligible statement of this character is certainly within their authority and ability.

" The statement that the present U. S. P. standards declare for straight whisky is on a par with another published statement purporting to come from the same source, that any doctor can get pure whisky by ' simply ordering Spiritus Frumenti, Eighth Revision.' The referee's report unmistakably pointed out to the members of the Revision Committee that the tests laid down in the U. S. P. VIII were very faulty, and especially that the tests for total solids and the solubility of the residue would permit the use of factitious and grossly-adulterated whiskies; and these are not the only points criticised.

" The Pharmacopœia should not become entangled in the trade controversies over whisky as a beverage, and in every way possible the referee has endeavored to avoid this. The duty of the Pharmacopœia is to define, describe, and supply tests for properly-produced whisky that may be dispensed for medicinal purposes. The report of the referee was unanimously adopted by the Subcommittee on Spirits, Liquors, and Waters, and was substantially correct and undoubtedly would have accomplished this purpose. The elimination of a proper pharmacopœial standard now leaves the quality of the whisky entirely to the judgment of the dispenser.

" The late Solicitor-General Lloyd W. Bowers was forced to conclude that the ' term whisky as a drug is not applicable to a different *product* than whisky as a beverage' (italics mine). However, he properly pointed out that the Pharmacopœia has the making of ' the particular requirements,' ' the points of distinction between superior and inferior whiskies,' ' the prescribing of tests of excellence.' This is the proper function of the Pharmacopœia, and is exactly what the Pharmacopœia has always done and continues to do in defining standards for numerous articles. For example, the standards in the Pharmacopœia for sulphuric acid and sodium carbonate are for those grades of these products suitable for medical purposes, and the Pharmacopœia does not attempt to fix standards for the technical grades of oil of vitriol and sal soda used in numerous industries. The same principle holds and should have been applied to whisky and brandy, and the definition, description, and tests laid down should be for those types or grades of these products suitable for medical purposes.

"It was the misfortune of the Pharmacopœia that several of the members of the Committee of Revision had been witnesses in the hearing before the Government officials to determine the standards for whisky as a beverage. They approached the pharmacopœial discussion from the viewpoint of the partisan in this trade controversy, and their efforts were directed to have the Pharmacopœia in this revision nullify the decision of President Taft and formulate a standard that would cover whisky as a beverage. Power and influence were exerted in no uncertain way to attain the end they desired and to sway the judgment of the committee and to control its vote.

"Before the referee had submitted any report to the Sub-committee, the General Committee received a circular in which President Taft's decision and actions were criticised. Further, this too evident intent was shown in a monograph prepared without reference to the referee and attempted to be put through over his head. In this draft the initial sentence defined whisky as 'The *alcoholic beverage* obtained by the distillation of the mash of *fermented grains*' (I am responsible for the italics, but not for the erroneous language). The description started out: '*A beverage* having, etc.' The referee declined to be merely a figure-head, and, in the discharge of this duty, refused to accept the texts for these as prepared in advance and submitted, without his knowledge, to the chairman of the sub-committee for approval and passage.

"To every one of the numerous assignments in the U. S. P. revision that has fallen to my lot to consider I have given careful study and made a report. Why the same consideration, fair treatment, and discussion that accompanied the other topics did not hold in the matter of whisky and brandy is a question. I fear this was due to the prejudgment and bias of some of the members.

"I have no desire to engage in any controversy on this subject, but the plain, uncontroverted facts should be understood by every member of the Council, and the responsibility for the failure of the Pharmacopœia to discharge a duty that it had accepted and voted to discharge and had assigned to be discharged should be fixed. Further, permit me to state that I cannot approve of the language of the resolution offered by Mr. Freericks."

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 14.

Philadelphia, Pa., December 20, 1915.

To the Members of the Council:

Gentlemen:

The following communication (December 18) has been received from Frank H. Freericks:

"In keeping with my telegram this morning, I now move, as substitute for Motion No. 23, the adoption of the following resolutions:

"'*Resolved,* That we respectfully request the Revision Committee of the Pharmacopœia to reconsider its action in deciding upon the deletion of brandy and whisky from the new Pharmacopœia, and urge it to include therein suitable monographs for both.

"'*Resolved,* That this request be made known also to the Board of Trustees of the United States Pharmacopœia and to the Revision Committee of the National Formulary.

"'*Resolved,* That the Revision Committee of the National Formulary be requested to defer action on the communication heretofore referred to it concerning this matter, pending word of possible reconsideration and favorable action by the Pharmacopœial Revision Committee, and that in the absence of such favorable action it be understood as the sense of the Council that suitable monographs for brandy and whisky ought to be included in the new revision of the National Formulary.

"'*Resolved,* That the National Formulary Committee be requested to include in the National Formulary at least two formulas for denatured alcohol best suited for external application, which said formulas either have or may find the approval of the Internal

Revenue Department in exempting denatured alcohol, prepared in keeping with them, from taxation.'

"The above substitute motion is offered upon further reflection with a view of avoiding friction, and also with a view to avoid the beclouding of the important subject-matter with subsidiary questions not necessary for consideration in connection therewith."

The above motion is seconded by C. T. P. Fennel. It will be regarded as *Motion No.* 29 (*Substitute Motion for Motion No.* 23).

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia Pa.

A. PH. A. COUNCIL LETTER NO. 15.

Philadelphia, Pa., December 24, 1915.

To the Members of the Council:

Gentlemen:

A telegram has just been received from Frank H. Freericks withdrawing last resolution of *Motion No.* 29 (*Substitute Motion for Motion No.* 23), regarding inclusion of formulas in the N. F. (IV) for denatured alcohol for external application, leaving the other three resolutions unchanged.

The resolutions will then read:

"*Resolved,* That we respectfully request the Revision Committee of the Pharmacopœia to reconsider its action in deciding upon the deletion of brandy and whisky from the new Pharmacopœia, and urge it to include therein suitable monographs for both.

"*Resolved,* That this request be made known also to the Board of Trustees of the United States Pharmacopœia and to the Revision Committee of the National Formulary.

"*Resolved,* That the Revision Committee of the National Formulary be requested to defer action on the communication heretofore referred to it concerning this matter, pending word of possible reconsideration and favorable action by the Pharmacopœial Revision Committee, and that in the absence of such favorable action it be understood as the sense of the Council that suitable monographs for brandy and whisky ought to be included in the new revision of the National Formulary."

In order to simplify the voting, the above will be regarded as *Motion No.* 30 (*Substitute Motion for Motion No.* 23).

Motion No. 29 having been withdrawn, no vote will be taken upon it.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 16.

Philadelphia, Pa., January 7, 1916.

To the Members of the Council:

Gentlemen:

Motion No. 30 (*Substitute Motion for Motion No.* 23) has failed to receive a majority of affirmative votes, the vote having been 12 for the adoption of the motion and 16 against.

Motion No. 29 was substituted for Motion No. 23 in Council Letter No. 14 but withdrawn in Council Letter No. 15, and Motion No. 30 was then substituted for Motion No. 23.

Motion No. 31 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 33. Charles Herbert Owen, U. S. Navy Aero Station, Pensacola, Fla., rec. by J. H. Rupert and W. B. Day.

No. 34. Charles Earle Delhotal, Attica, Kan., rec. by L. D. Havenhill and G. N. Watson.

No. 35. John W Akers, Jr., Mill Creek, Okla., rec. by E. G. Eberle and W. B. Day.

No. 36. Frank Y. Thedick, Lincoln and Colfax Sts., Denver, Col., rec. by Samuel T. Hensel and W. T. Hover.

No. 37. Charles MacGregor, 715 Washington Ave., Detroit, Minn., rec. by E. L. Newcomb and W. B. Day.

No 38. Harley R. Monroe, Tampa, Fla., rec. by G. D. Timmons and W. B. Day.

No. 39. Frank William Anderson, 1700 Coma Ave., S. E., Minneapolis, Minn., rec. by E. L. Newcomb and W. B. Day.

No. 40. Fred George Kiburtz, 32 Adams Ave., W., Detroit, Mich., rec. by Leonard A. Seltzer and A. A. Wheeler.

No. 41. Max Johnson, 32 Adams Ave., W., Detroit, Mich., rec. by Leonard A. Seltzer and A. A. Wheeler.

No. 42. Clarence A. Peat, 32 Adams Ave., W., Detroit, Mich., rec. by Leonard A. Seltzer and A. A. Wheeler.

No. 43. Raleigh E. Balger, care of Haddens' Pharmacy, Alta, Iowa, rec. by E. O. Kagy and W. B. Day.

No. 44. Clare A. Wilson, care of Ahrens Drug Co., Bedford, Iowa, rec. by E. O. Kagy and W. B. Day.

No. 45. Arthur C. Heidenreich, care of Olsens Drug Store, Des Moines, Iowa, rec. by E. O. Kagy and W. B. Day.

No. 46. E. Orville Gross, care of Miller Drug Co., Albia, Iowa, rec. by E. O. Kagy and W. B. Day.

No. 47. Plumer L. Egert, Iowa City, Iowa, rec. by E. O. Kagy and W. B. Day.

No. 48. James Weyrauch, 534 West Eighteenth St., Chicago, Ill., rec. by Leo L. Mrazek and William B. Day.

No. 49. Henry Fisher, M.D., 2345 East Dauphin St., Philadelphia, Pa., rec. by John R. Minehart and J. W. England.

No. 50. Melvin Carr Eaton, 333 North Broad St., Norwich, N. Y., rec. by Richard C. Stofer and J. Fred Windolph.

No. 51. Anton J. Schwarz, 3716 Densmore Ave., Seattle, Wash., rec. by A. W. Linton and Forest J. Goodrich.

No. 52. Emma Grace Lotz, Phar.D., 2135 Mt. Holly St., Baltimore, Md., rec. by Chas. Caspari, Jr., and Henry P. Hynson.

No. 53. Truman Smith, 1139 34th Ave., care of Madrona Pharmacy, Seattle, Wash., rec. by A. W. Linton and J. C. Palmer.

No. 54. David J. Gleason, United States Marine Hospital, Stapleton, N. Y., rec. by William L. Stearns and Dr. H. M. Whelpley.

No. 55. Eugen Friedmann, M.D., 65 Oak Grove, Minneapolis, Minn., rec. by Gustav Bachman and E. L. Newcomb.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

THE WILLIAM PROCTER, JR., MONUMENT.

There has been some progress with the bill presented by Congressman J. Charles Linthicum, of Maryland, which contemplates that permission be granted for the erection of the William Procter, Jr., monument in the Smithsonian Institution grounds at Washington. The bill also provides for a contribution of $2000 by the Government for the erection of the base and pedestal.

The hearing before the Committee on the Library has been printed, and the next important step is to have the bill favorably reported. Your influence with a member of the committee may mean success; indifference will undoubtedly not be effective.

No persuasion is desired other than a presentation of the worthy object in which all American pharmacists are interested. It is now more a question of pharmacists exhibiting their faith in the mission of pharmacy.

Honorable James L. Slayden, of Texas, is chairman of the Committee on the Library; the other members are: Congressman Frank H. Clark, of Florida; William B. McKinley, of Illinois; Thomas G. Patten, of New York, and Edward W. Gray, of New Jersey.

Following a report of the committee, final action is taken in Congress, therefore your representatives in the Senate and House have a part in the consummation of our desire. They should know your wishes and be informed as to why they should cast a favorable vote.

USE THE LEGEND—"MEMBER OF THE A. PH. A."

J. O. Burge, writing to the Druggists' Circular, says: "Do you know, I think the members of the American Pharmaceutical Association do not seem to be as proud of their membership in that organization as they should be? That is the greatest body of scientific pharmacists in the world, and it should be considered a great honor to be enrolled with the leaders of our profession. If the members would use the legend '*Member of the A. Ph. A.*' on their prescription blanks, bill-heads, letter-heads, business cards, and, in fact, everywhere it could *appropriately* be used, and stand before their customers for what the A. Ph. A. stands for before the world, then we should not have to beg so hard to get new members in, nor wrestle so hard afterwards to keep them in. Let the 'dear public' know what the 'entitlements' Ph.G. and A. Ph. A. stand for, and it would soon begin to sit up and take notice as to 'who's who' in pharmacy. Don't you think it would be a good move?"

The Editor of the Druggists' Circular answers, "We do."

COÖPERATION ESSENTIAL FOR DYE INDUSTRY.

Salut Public, Lyons, France, in a recent issue printed an article by M. André Vinci on the French dye shortage. The author contends that if France desires to build up the dye industry numerous competent chemists must be trained for the work; corporations must be encouraged; the patent laws must be reformed, so as to favor French dye-makers; extraction and distillation of coal tar and manufacture of intermediates must be developed.

The situation in France is very similar to that in the United States, and Textiles presents it in this way:

"*First.*—Public laboring under illusions and ignorant of what is necessary to establish a dyestuff industry.

"*Second.*—The few existing establishments are merely assembling plants dependent on Germany for a supply of intermediates.

"*Third.*—Strong popular prejudice against combinations of corporations to control any industry.

"*Fourth.*—Insufficient and ill-balanced tariff on intermediates and dyestuffs.

"*Fifth.*—Lack of an effective working clause in the patent law.

"*Sixth.*—Lacked of trained chemists.

"*Seventh.*—Lack of efficient coöperation between the Government, industry and technical schools.

"*Eighth.*—A nearly complete dependence on the German dyestuff industry."

JAPAN ENCOURAGES MAKING OF DYES AND MEDICINES.

The Japanese Government provides a subsidy for Japanese corporations engaging in the manufacture of dyes, chemicals, and explosives. The Government retains supervision and places certain restrictions; if these are complied with, financial aid is given so as to pay the stockholders an annual dividend of eight percent.

Under dyes, the manufacture of coal-tar intermediates and synthetic colors is included. The medicines designated are: acetanilide, benzoic acid, carbolic acid, salicylic acid, antipyrin, bromine, chloral hydrate, potassium carbonate, creosote, alkaloids, and chemical derivatives and compounds of these. Carbolic acid and glycerin come under the provision for explosives; other chemicals and perfumes, when manufactured from by-products of the industries named, are further provided for.

The majority of stockholders in these corporations must be Japanese citizens, and the minimum capitalization is fixed by regulation of law. That this coöperative interest is encouraging Japanese investors is evidenced by a report that the stock for a company, providing for a $4,000,000 capitalization was oversubscribed 870 times. This reads like an exaggerated statement, but it is taken from the Tokio Asashē Shīmbum. Our reference is the Commerce Report of March 3, 1916.

THE NUMBER OF DRUG STORES IN UNITED STATES.

According to the directory issued by the Pharmaceutical Era, there are 46,561 drug stores in the United States. There are 280 jobbing houses, including 12 that are owned by retail druggists on a coöperative plan. The number of physicians has been estimated at 150,000. The following deductions may be made: There are 2000 inhabitants for every drug store, 165 drug stores for every jobbing house, three physicians for every drug store.

PERSONAL AND NEWS ITEMS.

Dr. John H. Dawson, who contributed largely to the success of the San Francisco meeting, has been a member of the American Pharmaceutical Association for thirty-four years. He has held the position of examiner of medicines and of chemist in the United States appraisers' stores at San Francisco for twenty years. The members will regret to learn that the office Doctor Dawson filled so efficiently for many years has been abolished.

Professor Jeannot Hostmann has assumed editorial management of the C. U. C. P. Alumni Journal, and this publication exhibits the energy of the editor and promises to become more useful than ever.

Edward Plaut, of New York, has presented $5000 to Princeton University for the establishment of the Albert Plaut Memorial Library of Chemistry in memory of his father —an act worthy of emulation by others.

Dean Theodore J. Bradley, of the Massachusetts College of Pharmacy, in an address on "Professional Opportunities for Women," in Perkins Hall, Boston, stated that pharmacy offered excellent opportunities for women and that they were well fitted for such work.

Prof. A. G. DuMez, who organized the pharmacy department at the University of the Philippines, Manila, has returned to the United States.

Benjamin T. Fairchild, president of Fairchild Brothers & Foster, of New York City, is receiving congratulations from his numerous business associates and friends on his marriage to Mrs. Helena Rutherford, widow of Alfred Ely and only daughter of the late John Rutherford and Charlotte Livingston Rutherford, of New Jersey.

Prof. R. P. Fischelis, for some time assistant editor of the Druggists' Circular, is now connected with the publicity department of H. K. Mulford Company.

The Proceedings of the Missouri Pharmaceutical Association indicate that members of the American Pharmaceutical Association retain an interest in their state association. Thus the roster shows, aside from our worthy Treasurer, who has been secretary for many years, that Leo Suppan is historian; Jesse E. Koppenbrink, president; H. D. Llewellyn, vice-president; William Mittelbach has been treasurer for twenty-five years; Glenn A. Burkhart is assistant secretary; O. J. Cloughly is chairman of the Council, and C. V. Whitney has been secretary of the Council for many years.

William O. Richtmann has resigned the position of resident manager of the Satsuma Camphor Company, Florida, and accepted a temporary position with the Wisconsin Pharmaceutical Experiment Station.

A Branch of the American Pharmaceutical Association is contemplated for Montana. Alexander Peterson, Charles P. Valentine, and Professor Mollet are encouraging the organization.

Dr. William Jay Schieffelin has been chosen permanent New York state chairman of the League to Enforce Peace.

William L. DuBois, of Catskill, N. Y., has received his certificate of life-membership in the American Pharmaceutical Association. His application was endorsed by Prof. P. W. Bedford thirty-seven years ago.

Mrs. Nora Dohme, widow of William F. Dohme, who passed away three years ago, died at the home of her son, Justus Dohme, of Baltimore.

Mrs. Burd MacFarlane Huhn, wife of Charles H. Huhn, died at her home in Minneapolis, February 27.

From the report of the Baltimore Branch we learn of the death of a sister of Prof. H. P. Hynson.

The JOURNAL offers condolences to the bereaved.

OBITUARY

Dr. William L. Rodman, president of the American Medical Association, died at his home in Philadelphia, March 8.

Dr. Rodman was born in Frankfort, Ky., in 1858, the son of General John Rodman, who for many years was Attorney-General of that state. He took his M.A. and then began the study of medicine with an uncle and cousin, later coming to Philadelphia and receiving his diploma from Jefferson Medical College.

Then he served a year's interneship at Jefferson, leaving there to serve two years in the U. S. Army Medical Corps at Fort Sill, in the then Indian Territory.

After that he married, his bride being the daughter of Dr. J. Q. A. Stewart, a noted alienist and an ex-president of the Kentucky Medical Society.

Two years of practice in Abilene, Tex., followed, and then he went to the University of Louisville to be a demonstrator in surgery. In 1898 he took the professorship in surgery at the Kentucky School of Medicine; resigning that, he came to Philadelphia, where he accepted the Chair of Surgery in the Medico-Chirurgical College.

The numerous honors which the research work and his position in the profession brought to Doctor Rodman were worn modestly. He was much sought after as a speaker, and his address in 1904, before the British Medical Association, on cancer of the breast, attracted world-wide attention in the medical profession. He was the author of several books and monographs.

Dr. Rodman is survived by his widow and three children, Dr. J. S. Rodman, Miss Virginia Rodman, and Mrs. Lincoln Godfrey, Jr.

Photo by Gutekunst

DR. WM. L. RODMAN

SOCIETIES AND COLLEGES

LIST OF APPOINTMENTS TO THE SEVERAL COMMITTEES OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

1. Committee on Higher Educational Standards, to work with similar committees from the A. Ph. A., N. A. B. P., N. A. R. D., and State Associations: R. A. Lyman, J. T. McGill, and C. H. LaWall.

2. Committee on Federation of all Pharmaceutical Associations: H. P. Hynson, R. A. Kuever, and William C. Anderson.

3. Committee to Study the Advisability of Establishing Two Classes of Conference Membership: H. H. Rusby, J. A. Koch, and H. M. Whelpley.

4. Committee to Decide Whether Conference Remains a Conference or an Association of Administrative Officers: Joseph P. Remington, H. P. Hynson, and Edward Kremers.

5. Committee on Faculties (Classification of Teaching Staffs): J. O. Schlotterbeck, George C. Diekman, and C. M. Snow.

6. Committee on Uniformity of Student Records, such as Matriculation Blanks, Advanced Standing, Cards, etc.: E. L. Newcomb, W. C. Alpers, and C. B. Jordan.

7. Committee on Curriculum: Theo. J. Bradley, George B. Kauffman, and C. Caspari.

8. Committee on Alumni: H. M. Whelpley, J. W. Sturmer, and A. B. Huested.

9. Committee on Relation of Pharmacy Colleges with Other Professional Schools: George C. Diekman, G. W. Stevens, and A. W. Linton.

10. Committee on Relation of the Colleges with Boards: W. G. Gregory, W. C. Alpers, and Philip Asher.

11. Committee on Uniform College Bulletins: Philip Asher, C. A. Dye, and L. D. Havenhill.

12. Joint Committee on Pre-requisite Arguments: W. B. Day, E. A. Ruddiman, and J. O. Schlotterbeck.

13. Joint Committee on Definition of a Proprietary Medicine: J. H. Beal, L. E. Sayre, and Charles Caspari, Jr.

14. Joint Committee on Relations of Medicine and Pharmacy: J. H. Long, A. B. Huested, and R. L. Green.

15. Committee on Teaching Methods: E. H. La Pierre, H. H. Rusby, and A. Bolenbaugh.

16. Committee on Joint Examination Questions (engaged): Henry Kraemer, C. B. Jordan, H. P. Hynson, William C. Anderson, E. O. Kagy, and C. A. Dye.

17. Committee on the Salaries of Teachers in Colleges of Pharmacy: H. H. Rusby, C. W. Patterson, and G. W. Stevens.

The College of Pharmacy of Corvallis, Oregon, has been elected to membership.

WILBER J. TEETERS, Secretary.

The American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy will likely meet in *joint session* in Philadelphia, Saturday, September 2. The separate session of the National Association of Pharmacy will probably convene in Philadelphia, Thursday, August 31, and September 1. Official notice will be given in next issue.

MINNESOTA PHARMACEUTICAL ASSOCIATION.

The adoption of a code of ethics and the emphasis given to the need of higher educational requirements on the part of pharmacists were among the features of the meeting of the Minnesota Pharmaceutical Association held in Minneapolis on February 10. The total attendance numbered 639; the present membership is 807—a remarkable showing of interest.

The treasurer's report showed that the finances of the association are in better shape than at any time in its previous history. The chairman of the Publicity Committee stated that about 8000 bulletins had been issued to members during the year, and recommended that at least 250 articles suitable for publication in daily papers be sent out each month by the Association. This recommendation was adopted.

At the meeting of the Commercial, Scientific, and Practical Sections of the Association various papers and addresses were presented. Among those taking part were Max Menzel, of Pipestone, who spoke on the "Buying of Drugs, Chemicals and Pharmaceutical Preparations"; Dean Wulling on the "Danger of Wood Naphtha"; Robert L. Morland, member of the State Board of Pharmacy, on "State Board Examinations"; D. D. Turner and Prof. G. Bachman on "Spirit of Nitrous Ether." In a paper on "Physiological Tests of Digitalis Produced in Minnesota," Dr. Newcomb stated that the results indicated a more potent drug than had ever before been produced in Minnesota. Dr. Newcomb also presented a brief paper on the need of the pharmacist exercising care in the selection of his business stationery.

Secretary Newcomb called attention to the action of the National Association of Boards of Pharmacy in adopting the recommendation that a college graduation be required for the registration of applicants by boards after 1920.

V. R. Kokatnur, of India, now a student in the University of Minnesota, addressed the Association and told of his desire of coming to the University for a pharmaceutical education and then to return to India to establish a college of pharmacy there. Following his address, the Executive Committee was directed to investigate the advisability of providing a scholarship for a student from India.

The following officers were elected: President, John F. Danek, Minneapolis; vice-presidents, Charles McGregor, Detroit; Dr. Emmet K. Ogden, Detroit, and H C. Backer, Olivia; secretary, E. L. Newcomb, Minneapolis; treasurer, L. J. Aberwald, St. Paul; Executive Committee, A. J. Kline, Max Menzel, and R. J. Messing. The following were nominated for appointment to the State Board of Pharmacy: W. A. Abbett, Duluth; R. J. Messing, St. Paul; R. Morland, Worthington, and Max Menzel, Pipestone. The next meeting will be held in St. Paul.

ILLINOIS PHARMACEUTICAL ASSOCIATION.

Arrangements for the thirty-seventh annual meeting of the Illinois Pharmaceutical Association, which is to be held at Springfield, June 6 to 8, are well under way. Vice-president J. Robert Phillips reports that the State Armory has been secured for the convention, and that there are excellent prospects for a large attendance. Harry B. Mason has accepted an invitation to address the convention, and Prof. James H. Beal will present a paper dealing with the anti-narcotic laws.

The movement to secure additional members has resulted in the accession of nearly three hundred so far, with prospects of doubling this number before the assembling of the convention.

NATIONAL ASSOCIATION OF DRUG CLERKS WILL MEET IN CHICAGO.

The National Association of Drug Clerks will hold its annual convention at the Hotel Sherman, Chicago, on June 1, 2, and 3. In conjunction with the convention an exhibition, which will be open to the public, is planned. Drug manufacturers and all allied interests, proprietary concerns, etc., are invited to participate. The object of the exhibition, Secretary Mandabach states, is to educate the public to buy their drugs from registered pharmacists.

JERSEY CITY RETAIL DRUGGISTS' ASSOCIATION ELECTS OFFICERS.

The Jersey City Retail Druggists' Association, at its annual meeting on February 15, elected the following officers: President, J. G. Block; vice-president, W. R. Taft; treasurer, E. H. Maier; secretary, L. C. Hines.

A committee was appointed to coöperate with Local Secretary Charles Holzhauer, of the American Pharmaceutical Association, in preparing for the Atlantic City meeting.

FORTIETH ANNIVERSARY OF BOSTON DRUGGISTS' ASSOCIATION.

The fortieth anniversary of the Boston Druggists' Association, observed at Young's Hotel, Boston, with a dinner, was graced by the presence of Lieut.-Gov. Calvin Coolidge and Hon. Channing Cox, speaker of the Massachusetts House of Representatives.

The following officers were elected for the ensuing year: Prof. E. L. Patch, president; George H. Ingraham, treasurer, and Harry C. Wiggin, secretary. Following the custom of the Association, Mr. Briry, as the retiring president, became chairman of the Executive Committee, his associates being Charles F. Ripley, H. E. Bowman, A. H. Bartlett, Charles C. Hearn, F. W. Doliber, and Fred L. Carter. The Membership Committee elected is C. E. M. Harrington, Ralph R. Patch, H. C. Otis, H. W. DeCoster, and R. Albro Newton.

PHILADELPHIA ASSOCIATION OF RETAIL DRUGGISTS ELECTS OFFICERS.

At the annual meeting of the Philadelphia Association of Retail Druggists the following were elected as officers for the year 1916:

President, R. W. White; first vice-president, W. D. Reynolds; second vice-president, A. R. Hesske; third vice-president, W. H. Morris; secretary, J. H. Barlow; treasurer, George W. Fehr; Executive Committee, H. C. Bingham, F. R. Keller, P. S. Rohn, Frank J. Austin, C. A. Wolff, S. C. Henry, and Alex. Young.

PHILADELPHIA BRANCH APPOINTS COMMITTEE FOR ATLANTIC CITY MEETING.

The Philadelphia Branch of the American Pharmaceutical Association has named the following committee to help arrange entertainment for the members of the American Pharmaceutical Association during the Atlantic City convention of that organization next September: William L. Cliffe, E. Fullerton Cook, C. Mahlon Kline, H. K. Mulford, Franklin M. Apple, and Samuel C. Henry, *ex-officio.*

SPECIAL LECTURES AT PHILADELPHIA COLLEGE OF PHARMACY

The Philadelphia College of Pharmacy has extended an invitation to the retail druggists of Philadelphia to attend a series of lectures and exhibitions on "Commercial Pharmacy" at the college building, 145 North Tenth Street, on Fridays at 1 o'clock. This course presents in an interesting and practical way the most important features of successful business practice. It is conducted under the direction of the Department of Commercial Pharmacy, but a number of special speakers have been invited to coöperate. The subjects still remaining follow:

March 17, "Principles of Salesmanship," by Prof. Herbert W. Hess, Wharton School, University of Pennsylvania; March 24, demonstrations of salesmanship by Samuel B. Davis, Clyde R. Hancock, Reese Roberts, Thomas L. Fouke, and E. G. MacCracken; March 31, salesmanship as applied to professional pharmacy: "Prescriptions," by J. C. Peacock; "Clinical and Diagnostical Work," by J. Atlee Dean; "Biologicals," by H. H. Whyte; April 7, demonstration of rubber goods and brushes, with a talk on their manufacture, quality, and values; April 14, demonstration of drug-store side lines: sponges, perfumes, soaps, stationery, candy; April 28, "Principles of Advertising," by M. P. Gould, of the M. P. Gould Company, of New York; May 5, window decorating; May 12, window decorating.

The windows will be decorated by Mr. Harry Harfman with goods supplied by Mr. George B. Evans. There will be other features on both dates, such as lantern illustrations of many drug-store windows, talks on window decorating, etc.

HIGHLAND PARK COLLEGE.

The recent annual exhibition was attended by a large number of visitors. The exhibits were of great variety and included physical and chemical experiments, pharmaceutical manipulations and manufacturing, analysis assaying, electric methods, and many other things.

UNIVERSITY OF ILLINOIS.

The fifty-sixth commencement of the University of Illinois School of Pharmacy will be held at the new Central Music Hall, 64 East Van Buren Street, Chicago, on Wednesday afternoon, April 26. The principal address will be made by Prof. Frederick J. Wulling, Dean of the College of Pharmacy, University of Minnesota, and president-elect of the American Pharmaceutical Association. The class speaker will be Frank Graham. President James will confer the degrees on a large class, which probably will number about fifty.

The arrangements for the Senior class are in charge of the following class officers: President, Dennis H. Real; vice-president, A. H. Bogard; secretary, R. L. Greenwood; treasurer, Thomas B. Copeland.

The Junior class recently elected officers as follows: President, Leroy T. Stark; vice-president, H. Giddings; secretary, F. Smith; treasurer, Corydon A. Babbitt; sergeant-at-arms, Al Ferring.

NEW YORK COLLEGE OF PHARMACY.

Commencement will this year be held on the evening of Thursday, May 11, and, as usual, at Carnegie Hall. It is hoped that President Butler will be able to preside, but, in his inability so to do, the provost of the University, Prof. William H. Carpenter, will assume his duties. The Hon. T. C. T. Crain has consented to address the graduating class. All those interested may obtain tickets by writing to the college office.

The Junior class exercises will take place on Wednesday evening, May 10, in the College lecture hall, at which time an interesting program will be presented and the honor students of the Junior class will receive their awards.

The Secretary's office, in conjunction with the Membership Committee, is engaged in the publication of a list of members, which, together with an outline of the objects of the institution, will be sent to all the pharmacists of Greater New York.

The Nominating Committee has drawn up the following ballot for presentation at the annual meeting, on March 21: For president, Nicholas Murray Butler; first vice-president, Charles F. Chandler; second vice-president, William J. Schieffelin; third vice-president, Henry C. Lovis; treasurer, Clarence O. Bigelow; secretary, Thomas F. Main; assistant secretary, Charles W. Holzhauer. For trustees to serve three years: Otto P. Amend, Adolph Henning, Caswell A. Mayo, Reuben R. Smith, J. Leon Lascoff.

At this meeting Prof. Henry P. Hynson will address the members on "Commercial Training for the Pharmacist."

Subject to acceptance by the Board of Regents, the Pharmacy Council of the State of New York has decided to increase the entrance requirements, beginning with the session of 1918–19, to two years' high school or 30 Regents' counts.

The following gentlemen have been recently elected to membership in the college: Louis Berger, H. H. Blomeier, John H. Kimmel, R. M. McCutcheon, Morris Manheimer, Nelson P. Snow.

THE PHARMACIST AND THE LAW

THE STRUGGLE IN OHIO FOR HIGHER PHARMACY EDUCATION, SHOWING THE NEED OF NATIONAL UNIFORM LAWS AND RECIPROCITY BETWEEN THE VARIOUS STATES.

BY FRANK CAIN, M.D., PH.M.*

The writer goes on record here to state that, in his humble opinion, the lack of proper educational requirements in the past has been the chief source of most of the evils existing to-day in pharmacy. The progress other professions have made, by adopting more modern laws that meet the needs of a more complex civilization, should be an object-lesson to pharmacists. The new Ohio pharmacy law will cause students to honor and respect a college of pharmacy and its teachers; it will give the better educated the first chance in honorable and profitable appointments; it will develop a greater love between teachers and students.

Prerequisite education for eligibility to a state board examination and uniform reciprocity laws in every state is the thought uppermost in the mind of the writer. It is unfortunate that the different states do not pass similar pharmacy laws. We shall no doubt obtain greater uniformity in the future through national coöperation of all the states. This coöperative work begins first in the individual state, and is now spreading in the allied profession—the practice of medicine—between the various states. The object in view is to give information which may be helpful in securing uniform legislation in other states where prerequisite laws are contemplated. It will save a great deal of time in harmonizing the statutes of states later if laws that are not adaptable for national reciprocity are avoided.

There were three bills introduced into the last Ohio legislature, all having in view higher pharmacy education. The first bill provided for two years in high school and two years in a college of pharmacy. The second provided for one year in high school and two years in a college of pharmacy. The third provided for two years in high school and two years in a college of pharmacy. This bill differed but slightly from the first bill introduced, known as the Mooney bill. The second bill, introduced as the Clark bill, while requiring only one year in high school, also contained an apprenticeship clause, which the other two bills had omitted. Under the circumstances a joint committee was appointed by the House and Senate and a day set to listen to the arguments of all those interested.

The results of a later conference were satisfactory to all concerned. However, there is one point in the new Ohio pharmacy law that was not agreed upon by the Conference; namely, that college attendance only, for four years, shall qualify for registered pharmacist. They agreed that one year's experience in a retail drug store and three years in a college of pharmacy shall qualify for registered pharmacist examination. This point was taken from us by the legislative committee, claiming it would be too much of a handicap on higher education. The alternative, two years' drug-store experience and two years in a college of pharmacy, was accepted by the legislative committee, which the druggists think the more practical plan. We must have uniformity in state laws, if we are to secure reciprocity between the various states.

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* Representative at the Conference of Ohio Colleges.

Under the old Ohio law colleges were placed under a disadvantage in not being able to compel students to attend their classes, because they did not need the college diploma, as they do in medicine and dentistry, before being eligible to take a state board examination. The necessary attendance at college will produce evenly-balanced knowledge in the different branches, thus obtaining general efficiency. Next year we believe the good work will show in the high class of students who will enter the colleges of Ohio.

The great need of the hour is more ethical pharmacy, less commercialism, more association work among the druggists, and the amalgamation of every state association with the American Pharmaceutical Association. Therein we should include the American Conference of Pharmaceutical Faculties, the National Association of Boards of Pharmacy and in coöperation with the various medical associations. By such coöperation the public will acquire a higher regard for druggists and physicians, who, through their representatives, could secure any kind of necessary legislation.

Ohio is now doing this kind of association work, and good results are reported from different parts of the state by Theodore D. Wetterstroem, secretary and propagandist for the Ohio State Pharmaceutical Association. And now that we have a real pharmacy law, we expect to make some rapid forward strides, but we can only hope for success if aided by association work. Ohio, with her powerful national influence in every activity of life, will do her full share in contributing toward the elevation of American pharmacy.

TRADING-STAMP LAWS VALID.

Florida and Washington statutes which have for their object prevention of the use of trading-stamps and profit-sharing coupons, this result being achieved by prohibitive taxes, were held constitutional by the Supreme Court of the United States, March 6. The Court held that state legislatures might prevent the issuance of profit-sharing coupons of all kinds. The Court did not, however, pass on the question of the validity of the use of cash premiums.

The Supreme Court never has passed on the question before, but some state courts have held coupon regulation laws unconstitutional. Premium advertising has been held legal, however, in Alabama, California, Colorado, Georgia, Maryland, Nebraska, Missouri, Illinois, Rhode Island, and New York.

A FEDERAL HEALTH DEPARTMENT.

Senator Owen has again introduced his bill for the establishment of a Department of Health, under the supervision of a Secretary of Health, appointed by the President and having a seat in the Cabinet. To this department would be transferred all matters pertaining to public health and vital statistics except the Medical Departments of the Army and Navy.

Senator Smoot has introduced a bill for the establishment of a Public Health Service. In addition to the administrative divisions now authorized by law, there is created a Division of Sanitary Engineering and of Child Hygiene, and the Division of Vital Statistics of the Census Bureau is transferred to this service. The office of Assistant Secretary for the Public Health is created, under the supervision of the Treasury Department.

DEFINITION OF "WHOLESALER."—MANUFACTURERS MAY SELL TO WHOLESALERS ONLY.

A "wholesaler" is one who buys in comparatively large quantities and who sells usually in smaller quantities, but never to the ultimate consumer of an individual unit He sells either to a "jobber," who is a sort of middleman, or to a "retailer," who sells to the actual consumer. The quantities bought by the wholesaler may vary from a fraction of a carload to many carloads. It is the character of the selling, not of the buying, that stamps a man as a "wholesaler." Any firm or corporation is at liberty to sell to whom it pleases so long as it has not a monopoly of the product; if it decides to sell only to wholesalers, it may do so, and the retailer has no cause for complaint. (Great Atlantic and Pacific Tea Co. vs. Cream of Wheat Co., 227 Fed. 46, U. S. Circuit Court of Appeals.)

NEW YORK LEGISLATION.

The amended Hamilton-Fertig bill has virtually the same formula-disclosure provisions as the New York Health Board's "patent" medicine registration ordinance.

The additions proposed in the Boylan-Bloch bill to amend the New York cocaine law seek (1) to make it a felony for a veterinarian to prescribe or dispense any alkaloid cocaine or beta eucaine or any of their products for the treatment of or consumption by a human being, and for a dentist to do so for any person not under his immediate treatment as a dentist; (2) to make it a misdemeanor for any one falsely to use the title "registered pharmacist," "licensed physician," "licensed dentist" or "licensed veterinary surgeon" or falsely to represent himself to be a dealer in drugs, for the purpose of obtaining any of the above-mentioned articles.

Another bill on the subject of state narcotic legislation, which has just been introduced into the State Legislature by Assemblyman Evans, seeks to make all second violations of the present opium-chloral law a felony, instead of a misdemeanor.

TREASURY DECISION 2292 AMENDS T. D. 2244.

In entering items calling for narcotic preparation or remedies on the order forms issued by the Commissioner of Internal Revenue, in accordance with the provisions of Section 2 of the Act of December 17, 1914, the quantity of narcotic drug to the fluid or avoirdupois ounce should be indicated thereon, or, if ordered in tablet or pill form, the total number of tablets or pills, and the quantity of narcotic drug in grains or fractions thereof contained in a tablet or pill, must be stated. The narcotic content of official liquid or solid preparations or remedies need not be indicated on order forms, provided their official character is designated by "U. S. P." or "N. F." The law does not permit the use of official narcotic order forms for any other purpose than to obtain narcotic drugs coming within its scope, and in ordering physicians' medicines cases, buggy cases, hypodermic cases, and similar articles, the official order form should be used only for the narcotic drugs, or preparations and remedies containing such drugs, which, however, may be attached to and forwarded with the order for the desired article. The ordering of a narcotic preparation or remedy in a manner which does not clearly indicate the kind and quantity of narcotic drug contained therein, or that it is a "U. S. P." or "N. F." preparation or remedy, cannot be permitted.

The enforcement of this ruling will become effective May 1, 1916, in order to enable manufacturers and other dealers to acquaint their customers with its provisions. Until that date narcotic orders received by manufacturers and dealers, which call for complex preparations or remedies the formulæ of which are not well known to the purchaser, should have the quantity of narcotic drug to the fluid or avoirdupois ounce, or in an ounce of tablets or pills, added in red ink to the order form to distinguish it from the original order, the manufacturer or dealer immediately notifying the purchaser to make a corresponding addition on the duplicate order retained by him.

PROCEDURE IN CASE OF ATTACHMENT PROCEEDINGS UNDER LAW.

In making sales of narcotics under attachment proceedings, the court officer should prepare a complete inventory of all narcotic drugs coming into his possession through court proceedings, and require the purchaser to make out a government order form to the insolvent concern in order that the records of both parties will be kept straight.

Such officers should also be advised that to dispose of any narcotic drugs at a public sale to a person not registered under the Harrison law is illegal, as aiding such purchaser to violate section 8 of the law.

Unused order forms belonging to an insolvent concern should be turned over to the collector of internal revenue who issued them for cancellation and necessary correction on his record.

PUBLICATIONS RECEIVED

M. I. Wilbert speaks for uniformity in federal and state legislation in a paper prepared for the United States Public Health Service. We quote several passages from this interesting report:

"Laws designed to restrict the occurrence of poisons, or of other possibly harmful contaminations in food products, are recognized as being of importance, not alone from the standpoint of their intrinsic merit, but also from the point of view of the present temper of popular sentiment.

"The general uniformity in the phraseology and context of the several state food and drug laws would suggest the possibility of a strict compliance with the recommendations of the commissioners on uniform laws, to the effect that uniformity in food and drug laws can best be secured by amendments to the state laws with a view of bringing them in complete harmony with the requirements of the federal law."

This paper also present a *résumé* of laws relating to sale of poisons in state and interstate commerce, from which we abstract the following paragraphs:

"The diversity at present existing between the laws of the various states regulating the manufacture and sale of poisonous drugs is causing a great deal of embarrassment and in some instances complication and delay in the shipping of articles containing poisons from one state to another. The person or firm desirous of developing an interstate business in poisonous drugs is confronted by forty or more independent state laws, the requirements of which are so diverse that it is practically impossible to comply with them by adopting any one form of label for use in all parts of the country. It has been pointed out very properly that if a manufacturer must prepare and label his products in a specific way to meet the requirements in each state, and if the labels required in one state differ from those required in an adjoining state, the process of complying with existing laws becomes cumbersome and the cost prohibitive.

Some years ago an attempt was made in connection with state poison laws to define in a general way the nature of the products to be classed as poisons. These general definitions varied very widely in comprehensiveness, and even the less inclusive would to-day be construed to embrace many articles not recognized as generally harmful poisons because of the limited distribution given them at the present time.

"During the year 1915 persons interested in the enactment of laws to restrict the sale and use of poisons reverted to the earlier proposition of particularizing rather than generalizing the definition of a poison, and practically all of the recently-enacted laws are evidently based on the supposition that for all practical purposes it is best to enumerate specifically the articles that are to be included in the schedule of poisons."

STATE PURE DRUG LAWS.

"State Pure Drug Laws Enacted Since the Passage of the National Food and Drugs Act, June 30, 1906, with a Reprint of Said Act as Amended," is the title of a compilation recently published by the Proprietary Association and the National Wholesale Druggists' Association.

The book includes the Harrison Narcotic Act and regulations for its enforcement, and the narcotic laws of the various states; Cuban decrees and Philippine law; Section 117 of the New York City sanitary code; the Canadian proprietary medicine law; the national and state insecticide laws; extract from pharmacy laws of the several states; net weight laws; advertising laws; sample distribution laws; stock medicine laws, and other laws relating to the drug trade, including acts of all legislatures to December 31, 1915.

WAR DEPARTMENT

List of changes of stations covering period ending February 29, 1916, in the cases of Sergeants First Class and Sergeants Hospital Corps.

SERGEANTS FIRST CLASS

Andrew S. Donnan, from Ft. Douglas, to the Hawaiian Department, on the May transport.

George W. McKenzie, from the Army and Navy General Hospital, to Ft. Sam Houston.

George E. Daily, from Ft. Leavenworth, to the Philippines Department, on the April transport.

George A. Roberts, from Ft. Ethan Allen, to the Southern Department, for assignment to station.

Charles S. Elliot, from the 23d Infantry Hospital, Ft. Crockett, to Ft. DuPont.

Clifford H. Perry, from Ft. Banks, to the 23d Infantry Hospital, Ft. Crockett.

Oscar Kaufer, from the Hawaiian Department, to the U. S., on furlough.

Ralph W. French, from Ft. Logan, to the Hawaiian Department, on May transport.

SERGEANTS

James H. McDermott, from Ft. DuPont, to the U. S. Mine Planter *General John M. Schofield.*

Ignatius B. Thomas, from the U. S. Mine Planter *General John M. Schofield,* to Ft. Monroe.

John A. Brush, from the Hawaiian Department, to the U. S., on furlough.

Leo E. Bishop, from West Point, to the Hawaiian Department, on the March transport.

Brent A. Lemert, from Ft. Wadsworth, to Ft. Ethan Allen.

Fritz J. Sheffler, from Ft. McDowell, to the Army Medical School, Washington, D. C.

Tiffin Annesser, from Ambulance Company No. 5, to duty with the Wisconsin Militia.

John H. Strauch, Jr., from Vancouver Barracks, to the Hawaiian Department, on the March transport.

Claud J. Wilson, from the Letterman General Hospital, to the Hawaiian Department, on the April transport.

Paul T. Hogge, from the Letterman General Hospital, to the Hawaiian Department, on the March transport.

Alexander H. Weir, from the Army Medical School, Washington, D. C., to West Point.

George Gagan, from the Letterman General Hospital, to Vancouver Barracks.

Harvey I. Rice, from Ft. Leavenworth, to the Southern Department, for assignment.

John C. Schweiger, from Ft. Thomas, to Ft. Oglethorpe.

Lemuel R. Williams, from the Southern Department, to the Canal Zone, for assignment to station.

Willard C. Watson, from the Southern Department, to the Canal Zone, for assignment to station.

Jesse E. Massey, from Ft. Sam Houston, to the Philippines Department, on the March transport.

CHANGES OF ADDRESS

All changes of address of members should be sent to the General Secretary promptly. The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the Journal unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

Henry Milton,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

Takamine, J.
From 550 W. 175th St., New York, N. Y.
To 120 Broadway, New York, N. Y.

Rosenthal, D. A.
From Cor. Gay and Clinch Sts., Knoxville, Tenn.
To 521 Gay St., Knoxville, Tenn.

Richtmann, Wm. O.
From Satsuma Heights, Fla.
To 1721 Van Hise Ave., Madison, Wis.

Graber, Howard T.
From 639 Trumbull Ave., Detroit, Mich.
To 697 Trumbull Ave., Detroit, Mich.

Bankoff, Jacob
From 345 Hopkinson Ave., Brooklyn, N. Y.
To 191 Brown Place, Bronx, N. Y.

Bernhard, M.
From Syracuse, N. Y.
To Residence unknown.

Carey, H. B.
From San Francisco, Cal.
To Residence unknown.

Mankin, (Mrs.) Virginia
From Thurmond, W. Va.
To 3311, 13th St., N. W. Washington, D. C.

Knox, J. R.
From Center Point, Ark.
To 508 Central Ave., Hot Springs, Ark.

Senecal, H. C.
From Manila, P. I.
To Vancouver Barracks, Wash.

WORTHINGTON, J. W. W.
From Norristown, Pa.
To Pen Argyl, Pa.
BOMBA, O. J.
From Westhoff, Texas.
To Poth, Texas.
EISELE, GEO.
From Winchester, Ky.
To 1458 E. 86th St., Cleveland, Ohio.
MILLER, F. W.
From Homestead, Iowa.
To Amana, Iowa.
SEELEY, M. J.
From Manton, Mich.
To Room 217, Science Hall, Corvallis, Ore.
GOODWIN, HOWARD
From 291 Atlantic Ave., Boston, Mass.
To 261 Franklin St., Boston Mass.
RUBENSTEIN, LOUIS
From 218 Cherry St., Seattle, Wash.
To Joshua Green Bldg., 4th and Pike, Seattle, Wash.
REMUS, WM. J.
From Residence unknown.
To 845 Division Ave., S., Grand Rapids, Mich.
BOOKER, ROBT. L.
From 619 W. Main St., Richmond, Va.
To 2001 W. Main St., Richmond, Va.

JOURNAL ANNOUNCEMENTS

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, $4.00; Canada, $4.35; foreign countries, $4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to Journal of the American Pharmaceutical Association, 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the Journal can be regularly mailed only to bona-fide paid subscribers.

Requests for Back and Missing Numbers: Requests for back and missing numbers should be sent to the Editor. Claims will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from date of issue. Notice of change of address should give old and new address.

Contributions: The Journal accepts no responsibility for the opinion of its contributors. Contributions should be sent to the Editor; use only one side of the sheet for writing, and double-space the lines. Articles are accepted for publication on condition that they are contributed solely to this Journal; and "all papers presented to the Association and its Branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by consent of the Committee on Publication." (By-Laws, Chapter X, Article 11.)

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Advertisements: Communications relating to advertising should be sent to the Editor. Forms close on the first of each month, and copy should be in by the fifteenth of the month preceding date of issue, to receive proof. Date of issue—the fifteenth of the month. Advertising rates sent on request.

Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the Journal. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

An Application Blank will be found on page xix of this issue.

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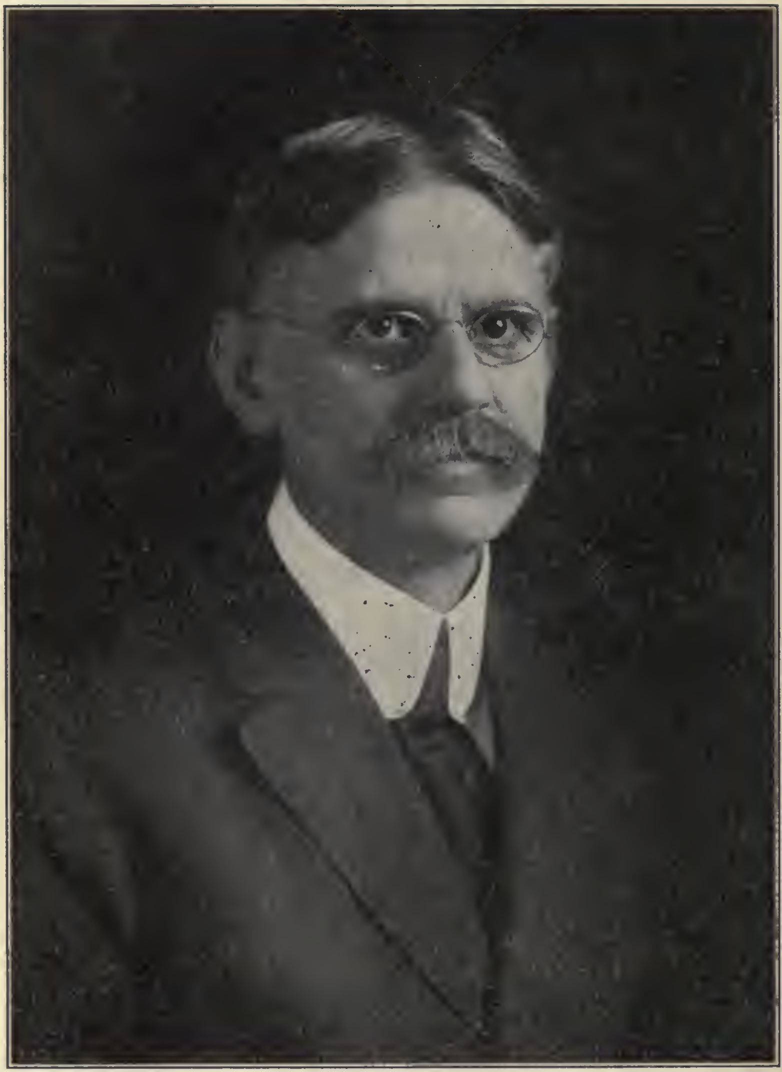
HENRY VINCOME ARNY
President of the American Conference of Pharmaceutical Faculties,
1915-1916.



HENRY VINCOME ARNY

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. V APRIL, 1916 NO. 4

HENRY VINCOME ARNY.

H. V. Arny, President of the American Conference of Pharmaceutical Faculties, is known as a most active worker in pharmaceutical organizations and educational affairs. Born in Philadelphia, he became a resident of New Orleans at the age of three years, and when sixteen years old he began his apprenticeship with his brother-in-law, F. C. Godbold. After graduating from the Philadelphia College of Pharmacy with honors in 1889, he returned to New Orleans, and in 1892 left for Germany, where, after studying at Berlin and Göttingen, he received the degree of Doctor of Philosophy in 1896. In 1897 he was called to the chair of pharmacy in the Cleveland School of Pharmacy, and after a short time was appointed Dean of the institution.

From then on, his life has been so crowded with pharmaceutical activities that many wonder how one man can do so much for his chosen profession and still do it well.

In 1896–1897 we find him secretary of the Louisiana Pharmaceutical Association. In 1898–1899 he served as secretary of the Scientific Section of the American Pharmaceutical Association. From 1903 to 1911 he was secretary of the Northern Ohio Druggists' Association. From 1906 to 1911 he held membership in the Council of the Ohio State Pharmaceutical Association. In addition to the above activities, during these and later years, he found time to teach, to write " Principles of Pharmacy," to act as member of the Committee of Revision for the United States Pharmacopœia and of the National Formulary. His contributions to pharmaceutical and chemical literature are many and varied, and all help to show the wonderful activity and many-sidedness of the man.

In 1911 he was called to the chair of chemistry at the Columbia University College of Pharmacy and, if anything, has become more active than before in organization matters. The New York Branch of the American Pharmaceutical Association chose him as its chairman in 1912. Since 1913 he has been chairman of the Committee on Weights and Measures of that association, and in 1915 he was elected a member of the Council. From 1912 to 1914 he was the editor of the Druggists' Circular.

JEANNOT HOSTMANN.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

NECESSITY IS A GOOD TEACHER—" X " STANDS FOR EXPERIMENT.

WE should not worry over the shortage of many of the remedial agents when it is possible to find others equally or more efficient—there really are only comparatively few specifics among known therapeutic agents. Applying the thought generally, " necessity seeks bread where it is to be found," and " the art of our necessity is great that makes vile things precious." Europe is now learning much relative to the value of food-stuffs, and also the use of therapeutic agents, or perhaps learning of means that will do without many of them.

The manufacture of oleomargarine was prompted by Napoleon when he realized the need of a wholesome substitute that could be more easily preserved in edible condition than butter.

When turpentine rose in price we sought substitutes; when our potash supply was handicapped, American sources were discovered; the shortage of shellac a number of years ago provided a substitute from which the superior talking-machine records are now produced.

One of our citizens had gone to a European health resort to advise with an eminent specialist, who directed him to the waters of an American spring, only a few miles distant from where the patient had resided during the greater part of his life.

We ought to learn a new materia medica when our armamentarium is running short, even if we substitute or imitate—and this opens another chapter.

Imitation may not be essential for progress, but it does play an important part in industry and economy. The linotype imitated individual type; aniline dyes were spurious imitations of other colors; machine-work has largely substituted hand-work. So we might also go through our materia medica. More effective medicinal agents have been substituted for crude drugs and other compounds; and in many instances the substitute or the imitation has become the " genuine," or better, product.

Europe largely created our materia medica and much of that which we discovered has been developed there to such an extent that we have become dependent either for crude or refined material. The " dollar " idea has somewhat contributed to the conditions. We prefer to seek profits in exchanging manufactured goods for crude material, than to develop them, unless the manufacturing can be done on a large scale.

The inventive genius is native here. He is the wonder of the world. The thing desired is to do away with slow processes and manual labor. Rapid production, quick exchange, characterize the trade of this country. We prefer to deal in large denominations. Prevailing conditions will not permit of slow methods, or handling of low-priced crude material, unless it can be exchanged quickly or converted into more expensive products that contribute a larger margin of profit.

We have bought the crudes for manufacturing and the native drugs of Europe because the wages paid in this country make competition in these lines impossible. Clinical laboratory experimentation is slow and therefore expensive, hence this work has largely been left to others. Conditions will not be decidedly different in this respect after peace is declared than before the war, but we should have learned some things it will be inexpedient to repeat, and also prepared for other plans of action.

The extent to which American manufacturers will engage in the production of synthetic chemical compounds remains to be seen; however, the pharmacists of the United States should no longer be compelled to pay higher prices than other countries for foreign medicinal agents, protected by U. S. patent rights. Foreign manufacturers should have no advantages over our own, and to this end our patent laws need revision. But beyond this, our materia medica deserves careful study. The number of remedial agents in itself is almost conclusive evidence that we are uncertain of their real merits. This speaks for coöperation between the schools and the industries so that more of the important drugs may be proven and standardized.

We are prone to look through different lenses at the accomplishments of other countries than sighted on our own. There is probably no country that would not gladly exchange their conditions for ours if that were possible. An analysis of the 1915 U. S. census returns, just issued, shows the money value of our manufacturers to be, in round numbers, $24,000,000,000, and that the United States leads the world in manufactured exports for 1915, the value of which is given at $1,784,000,000. However, we have greater opportunities that await development and while conditions may come about hereafter that will seriously hamper our industries in their trade with other countries, the time ought never to come again when these should not be prepared to supply every demand for home consumption. Our supply of medicinal agents should always be commensurate with the need for them. This is included in Preparedness.

When Alaska was purchased by the United States her resources were largely an unknown quantity. This may also be true with the Philippine Islands. Here may be a source of drug-producing and other useful plants. Unknown, or at least undetermined, resources of many states might be made available for the industries if such studies would be more closely associated with schools and receive more liberal encouragement from the people.

Even now we are well aware that nearly all raw materials entering into the manufacture of chemicals are found in this country, whereby the United States is placed in a very favorable position. When we take a survey of the world's resources, we are apprised that nearly all native products are found in this country, and those that are not serve as a medium of exchange for those we have to offer.

This phase of commerce is to be considered and constitutes a problem of every nation, namely, to find takers of products in exchange for money or goods that can be advantageously disposed of.

Exactly what the changes in the chemical and pharmaceutical industries will be after peace is declared, no one can tell; but what we term "normal," applied to conditions of trade, will undoubtedly have a somewhat different meaning than in the past.

Necessity *should* be a good teacher—X stands for experiment. E. G. E.

EDUCATION IS PREPARATION FOR ACTION.

THIS editorial was prompted by a news item, and editorial, and a hearing on the proposed New Jersey Pharmacy Law before the State Senate Committee on Public Health.

The news item had as headline, "2000 Druggists Said to Be Substituting," and was followed by the statement that "Dr. ———, Director of Public Health and Charities, addressed the Business Men at ——— last night, and declared that *2000* druggists in the city were 'substituting' in prescriptions."

"I recently made a test," said Doctor ———, "and of the first twelve prescriptions filled, all but three were substitutes. This permits my deduction that 2000 druggists in the city are substituting instead of filling prescriptions with the drugs called for."

The editorial is entitled "The Sale of Poisons," and follows:

> The sensational poisoning case now attracting so much attention is a striking commentary on the ease with which the most deadly poisons can be obtained by any one who wishes to use them for any reason. By a happy accident the purchase of the poison was traced in this case. The accused went to a physician friend to learn where he might buy the arsenic that he wanted, but by so doing only added another clew for his detection, for he might have simply walked into any drug store and bought the poison without more than signing his name.
>
> Quite needless to say, there is no compelling necessity on any one who wishes poison for any purpose to sign his own name and no safeguard against his disguising his handwriting. The druggist need not necessarily be acquainted with his customer nor need there be any identification of his signature.
>
> If the paying out of money at a bank were as simple as this and as unguarded it is easy to understand how many abuses of the privilege accorded there would be. Surely human life deserves as much protection as money, and reasonable safeguards could be arranged by law so that at least the intending criminal would realize that he was leaving a very definite trail behind him.

Representatives of the grocery trade fought the New Jersey Pharmacy Bill and these were among the charges:

"That the bill would prohibit any grocer from selling remedies such as paregoric;

"That the bill was class legislation and was fostered solely by the pharmacy trade organization for the purpose of *confining the sale of drugs to drug stores;*

"That there *was no public demand* for such a bill and it was *an unnecessary imposition* upon the privilege of retail merchants to sell medicines and other proprietary remedies."

The headline in the paper of the report from which the brief extracts are taken read, "Merchants Put Up Stiff Fight Against Passage of Common Store Muzzler."

The comparison, for which purpose these items are quoted, is that in the first two the need of protection and the lack of it are emphasized, and the latter contends for an "open door" in the sale of medicines.

The subject of our editorial speaks for education; education of the public so that they may realize the need for the protecting influence of pharmacy laws; education of the pharmacists so that they will appreciate more thoroughly their own responsibility and that they are or should be their brothers' keeper.

The news item presents the story in a sensational way. Without a knowledge of the facts in the case, the twelve stores may have been selected because of expected results. Succeeding papers qualified the first statement by saying that it is estimated that *2 percent* of the druggists resort to substitution, and the further comment: "Some of the druggists are victims of drug peddlers who take advantage of the high price of drugs and get up fake packages to imitate the original."

The desire of this writing is also to direct attention to what is indicated by the hearing on the New Jersey Pharmacy Bill, that there is an effort to destroy the protection which is given the public in the sale of medicines and poisons, and to oppose protective measures which involve sale regulations of medicines.

We invite a careful reading and consideration of Dr. J. H. Beal's article in the March issue of this JOURNAL, entitled, "Desirable Legislation as an Aid to Maintain Pharmacy." We might easily make applicable quotations from this excellent contribution, but our message is spoken by *Education is Preparation for Action.* There will always be difficulty in securing legislation unless the public is educated to a realization of their need for it, and have confidence in the ability and integrity of those included in the proposed regulations; and then,—you cannot tell what a legislature will do, anyway. Legislators are largely influenced by what their constituents demand.

Pharmacists should not remain inactive when an attempt is made to permit the unregulated sale of medicines, especially when this force is sufficiently powerful to prevent the adoption of a useful protective measure, such as was contemplated by New Jersey pharmacists. Neither should they remain silent when unwarranted charges are made, nor when conditions are reported which it has been their persistent purpose to correct; ineffective, because the people and the press have withheld their support—why? Do they lack confidence in the pharmacist's ability and integrity? Look inward and outward.

Again, "A cause is hopeless when the spokesmen are not converts," and—prepare for action by means of education. E. G. E.

THE AMERICAN PHARMACEUTICAL ASSOCIATION AND ITS JOURNAL.*

I realize that it is a difficult task for anyone to attempt an address on association work for this company who are imbued with the spirit of coöperation, who have analyzed and studied the question as it relates to the American Pharmaceutical Association and are faithful members of this organization.

But this is my subject and in hastily preparing for a presentation of it, I hope that I may be able to bring out some salient points for making the American Pharmaceutical Association stronger, and, if possible, more influential for the good of pharmacy and of greater value to its members. In this attempt I am searching for illustrations, hoping that I may strike on at least one thought that is applicable.

The formation of associations is always prompted by the individual's realization of the power there is in combined or concentrated effort, systematically and thoughtfully applied. At the mint, one of the happy sallies of the guide is to inform the visitor that he can have a bar of gold if he will carry it away with him; but what would happen if the half dozen visitors would accept the invitation at one and the same time? The offer is made for individual, not united, effort.

An association reminds me of the complex carbon compounds. The atoms or groups of atoms differently arranged, though of the same kind and nearly so in quantity, give rise to compounds decidedly different, some bitter, some sweet, some odorless, some odorous, some harmless, some poisonous, but nearly all of them very similar in appearance. The difference comes from how the individual atoms harmonize, how the groups are linked together and work together. Some of these compounds differ again when brought in contact with other influences; let the sun shine on some of them and they change color, they can't stand the light—they leave the association.

Occasionally a disturbing element may be brought in, say N or accompanied by O, that quickly disarranges the combination, even making cotton, emblem of utility, a source of destruction: waste, discord.

I have seen the people on your busy streets, out of the window of perhaps the fortieth floor, and I can well imagine what the appearance would be still higher up. The little lively specks moving here and there, busy as the proverbial ant, seemingly without a definite purpose, but we know that every movement was prompted by a thought and the sum total of these charges influences perhaps in a more or less remote way, every human being, every other kind of life, every activity in this world of ours.

Having these three illustrations, let me endeavor to apply them as best I can. First, that in relation to combined, harmonized, concentrated effort. The effective strength of coöperation is not so much in following the direction of a leader as in the hearty accord of all in the purpose—everyone must put himself into it. One of the difficulties of the drug business is that druggists are more or less at sea relative to its activities. They must make a living out of it whether the situation is altogether to their liking or not. And perhaps if other businesses or professions were analyzed there might also be some dissatisfaction among those who pursue them. Perfection may be striven for but is never reached,—therefore there is always encouragement for progress. There is constant talk of commercializing pharmacy, but there is no business or profession that is not followed for a livelihood. So long as druggists think as much as they do about serving others more than how they serve themselves, it cannot be rightly said that they are dominated by commercialism. Surely the Association can expect better associates from among progressive business men than from among those that are unsuccessful.

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* An address by E. G. Eberle, before New York Branch, A. Ph. A., March 13. By vote of the Branch it was requested that the address be printed in the JOURNAL.

Our Association realizes the existing conditions of the drug business and the work of the different Sections is systematically arranged so that all share in the benefits of the annual convention.

The success of an art or profession is reflected, not by selected individuals, but by the many engaged therein. We improve pharmacy by contact and conduct, by acts, not by words. We prepare ourselves for greater opportunities when we contribute advantages to others. We have profited by the lives of those who made our opportunities possible. Our further duty is plain—we should efficiently prepare others for the work we are assigning them to develop. Together, let us lift and carry away " the bar of gold."

Applying the second illustration, we should name our compound, not " 666," but add another six. By the way, six is a good number; it represents the six working days of the week. At any rate, the four sixes placed next to each other should represent the number of our members, and would, if each one of us would only make up his or her mind to bring in a couple of new applications for membership. That should not be an impossible task when we have at least 45,000 druggists in the United States.

The atoms are the individual members; the compound represents the Association. The groups comprise the Branches, the Sections, the State Associations and all the related helpful organizations which should be brought in for perfect unity and effectiveness. The Association is the mass held together by the forces that activate the individuals and the groups. So then, to have the Association properly coördinated, these rings must be strongly linked or the compound would not be representative of the Association. But if the correct proportions obtain, if there is the proper activity and controlled mass action, then we have a body serviceable to all.

Inactivity may change the complexion of the Association; fortunately this is readily observed, just as the change of color in our chemical compound, and the suggestion is to correct the conditions. We all need to be stirred to action occasionally, especially when conclusions are reached that full duty has been performed by paying the annual dues, forgetting that the member's influence and coöperation are an important part in loyal membership. Occasionally, N and O get busy—constructive criticism is helpful when the critics recognize excellence as well as imperfection.

The last illustration—the moving, busy people viewed from a distance—may be applied to divergent views of members, apparently irrelevant topics for discussion and, with this fortunately, the preponderance of systematized useful work. All of this activity is essential to the life of the Association; a sleepy organization is an offence against the laws of good behavior. We may think there is little to show for all this continuous effort and tremendous amount of performance until we look back over the history of our Association and realize that nearly all the work for American pharmacy had at least its inception here. We must, of course, not seek satisfaction in what has been done, unless it brings enthusiasm for more and better work—*the more we achieve, the more there is before us to be done.*

An effective association represents the subordination of the individual to group control, the greatest good for the greatest number, and therefore leads to wider opportunity for all the members to rise above their former level. President-elect

Wulling, in his address as president of the American Conference of Pharmaceutical Faculties, speaking along this line, for coördination of associations, said in part:

> Our national development has reached a point where isolation and independence may still be possible, but where they are unprofitable and foolish. Interdependence is a great privilege and advantage of which we of this higher civilization may be the beneficiary if we so choose. Interdependence brings strength, safety, and comfort, and pharmacy is the rightful inheritor of these, but it must claim them and must fit itself to enjoy them. No organization can accomplish singly all that it should, and therefore the sum total of the result of the work of all the separate or ununited organizations can never equal a hundred percentum. By their very nature all pharmaceutical organizations are related. If they would unite into a strong federation, each preserving its identity for its own local or particular purposes, but merging with each other heartily and unselfishly in some wise and consistent manner in all matters of common or national interest, all problems could be solved much more easily, quickly, efficiently, and wisely. Our local, state, and national governments might serve as a pattern.

I am sure that Doctor Wulling recognizes the difficulties that obtain in promoting such organization, but if the desire is sufficiently strong, if the motives of those entering into the promotion are sincere, it is not impossible. No effort ever persisted in for the length of time proportionate to the aim ever wholly failed. The words " propose " and " purpose " are linked by effort, or, perhaps better, it is energy that combines them into accomplishment.

There are new fields opening for pharmacists in this country, especially in industrial lines, and this means more work for the Association. The opportunities in this city are greater than anywhere else and therefore you are interested.

The reorganization of the medical corps of the United States Army is contemplated and we should see to it that pharmacists in the Government service are given proper recognition. We may be speaking selfishly, but, as a matter of fact, those who serve their country in these responsible positions should be prepared to render efficient service. The experiences of the Spanish-American War should not be repeated. Trained men are needed and they are entitled to a degree of official and professional standing.

The Association is doing service for the pharmaceutical, chemical, and other related industries and will have a part in the promotions of these industries, stimulated by the changing conditions in Europe. The Association has always given more to its members and for pharmacy in general than the returns from membership fees warranted and while, fortunately, conditions have always developed which made this possible, endowments should be provided that will permit the Association to carry on its good work without handicap. Times have changed, schools and associations like ours in order to fulfil their duty to pharmacy must in part be aided by those whose needs they supply and whom they benefit. The graduates of schools of pharmacy should consider it a duty to hold up the standard of their respective Alma Maters and a privilege to contribute to their support in after-years. To that end, I am almost willing to say that graduates should nominally be assessed to pay an annual sum. We all pay to keep up educational and other institutions for the good of society, why not take a relative interest in our profession?

And now, last but not least, you will expect me to say something about the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. I am going to borrow an illustration used by the Philadelphia Branch of the American Chemical Society. Chemical and pharmaceutical investigations are being translated into vigorous activity and, therefore, in keeping with one of the thoughts I have endeavored to present to-night, I will name the JOURNAL a catalyst, in the same sense that it reacts by contact. A catalyst first combines with one of the reaction components which reacts with other components of the compound. So the purpose of the JOURNAL is a helpful one, uniting and working for the members of the Association, Branches, Sections, the related bodies, and pharmacy in general. The JOURNAL is a means for promoting the work on the Pharmacopœia and National Formulary and now in preparing for the Recipe Book.

The JOURNAL, as the official organ of the Association, conveys the transactions of that body, and by every means that the publication may be aided the Association is helped. Everyone can assist in one way or another and your coöperation will be appreciated by the Editor, who, according to the best of his ability, is endeavoring to promote its success. Your encouragement, advice, and constructive criticism are always welcome.

MRS. GEORGE D. TIMMONS, VALPARAISO, IND.
President Women's Section, American Pharmaceutical Association, 1915–1916

MISS ANNA G. BAGLEY, COLUMBUS, OHIO
Secretary Women's Section, American Pharmaceutical Association, 1915–1916

WOMEN'S SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION.*

PROCEEDINGS OF THE THIRD ANNUAL CONVENTION HELD IN SAN FRANCISCO, CALIFORNIA, AUGUST, 1915.

The first session was held at Tait's Café, San Francisco, Calif., Tuesday, August 10, at 2 o'clock P.M.

The meeting was called to order by the president, Mrs. John Culley, of Ogden, Utah.

Mrs. Richard Reese, of San Francisco, opened the program with several vocal selections.

Prayer was offered by the Rev. F. W. Clampett.

The address of welcome from the San Francisco hostesses was delivered by Mrs. H. L. Harris, who said:

In behalf of the San Francisco Ladies' Auxiliary of the California Pharmaceutical Association, I bring you greetings of welcome. We are delighted to have you with us to-day to participate in our pleasure, and hope that every hour spent in our midst will prove one of greatest pleasure to you all; and when the time arrives for your return home, be it in the far East, the North, or the South, may you carry home with you pleasant memories of your visit to California, San Francisco, and the many friends you have met here. Again I wish you a cordial welcome.

Mrs. H. M. Whelpley, of St. Louis, responded to these greetings as follows:

In the first place I wish to express my appreciation of the honor conferred in calling upon me to respond to this address of welcome. When I see your kind faces and realize the hearty welcome and the warmth and interest that I know is meant, I have scarcely fortitude enough to thank you for your words of greeting.

Your Golden Gate stands ever open, bidding the stranger to enter, with no St. Peter to demand a passport, and in addition you send your charming women to welcome us.

For the third time in the history of the American Pharmaceutical Association we are meeting in your state, the second in size in the Union; for the second time in San Francisco. To have the privilege of coming to this beautiful city, where there is so much to please us and so much to enjoy, would alone be sufficient, but to have added to this the warm welcome which we know is meant, and which we realize comes from the speaker's heart, makes the pleasure doubly great and all the more to be enjoyed.

San Francisco is at the edge of an empire of magnificent distances. When we consider the difficulties of communication between it and the older civilization of our country, we are not surprised that the San Franciscans are extremely proud of their work.

We who live on the other side of Nature's great barrier—the Rocky Mountains—have come in answer to your friendly call. When we are at home we think and speak of our friends in the North and our friends in the South, but when we join hands and come in one great common carrier, we come as one and feel that we folks in the East have come to visit you folks in the West.

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* Papers read before the Section, excepting Reports and Addresses, will be printed in succeeding issues of the JOURNAL.

Although a great expanse divides us, we are still one people with the same aim and common thought, and 'tis this intercourse that keeps us one. For " East is east and west is west, and never the twain shall meet," does not apply to our country, the melting-pot of all nations, where we speak a common language and our motto is " Onward and Upward."

We are not here by accident, but because we have been planning for eleven months to come, to be with you and to become better acquainted. Know your neighbor and you will like him. " How endearing is the title of friend, what a charm in the very name of friendship! "

Webster's definition of a friend is " One who entertains for another such sentiments of esteem, respect, and affection that he seeks his society and welfare." That is why we are here: to be with you and to count you among our friends.

I wish to thank you again for opening to us your gate, your doors, and your hearts, and we promise to take advantage of the privileges extended, and, banishing all sorrow, think of the following lines:

Don't worry your souls with trouble, and fret and fume all the day,
But grasp them and, like air-bubbles, they vanish in mist away.
Don't burden your heart with sorrow, and see but the darkness ahead,
But hope for a brighter to-morrow, when the yesterdays all are dead.

Mrs. Fletcher Howard, president of the women's organization of the California State Pharmaceutical Association, brought the greetings from her organization:

I cannot begin to tell you how happy I am to-day. This is the second time that I have had the great privilege of being a factor in bringing this national men's organization to California: six years ago to Los Angeles, where I had the very great pleasure of welcoming the sisters and guests; to-day in San Francisco, the empire city, a city which, destroyed in a day, has almost rebuilt itself, and upon which the whole world looks to-day with wonder, surprise, and appreciation.

All changes, mental, moral, and physical, are preceded by a vision. In this case it was the vision of the Mission Fathers, of the Forty-niners, of those who came by the Horn, or with ox teams and prairie schooners, who saw the possibilities of this golden land, and laid the basis of what we to-day enjoy.

Sixty-three years have been the sessions of the American Pharmaceutical Association chain, and it is with the very greatest happiness that California for the third time welcomes this Association. We hope it will only be six years more before you will come back again to God's country by the golden sea.

In welcome of your coming we have planted poppies on the hillside, made rose hedges on the boulevards, and in Los Angeles you will find palm trees growing on the sidewalks, put there as a greeting for the people of the East, the West, the North, and the South who came to our expositions.

Show me a state which in one year can produce two expositions for the world's enjoyment. First the great San Francisco Panama Exposition, which is the crowning triumph and the celebration of the finishing of the Panama Canal. Then San Diego, that golden city by the sea, has without assistance produced an exposition which in beauty of arrangement is wonderful. I have not seen it myself, but am told that it is something once seen is never forgotten.

We are glad to be able to do so much to welcome you along the line of scenic beauty and education, both of which you will find at these, our two expositions.

Life is a quarry, and in its layers we find what we look for. Happy indeed are those who find in the layers of Life's quarry scenic beauties, friendship, and the memory of travels.

I feel that personally I have very much to be thankful for. This is the length of my American Pharmaceutical Association chain, and the last one is to be added. No amount of money would take from me the memories, the happiness of the enjoyment of the friends I have met in the remote past, and those who from year to year come to these exposition gatherings when we have expositions and the yearly gatherings of the American Pharmaceutical Association.

Again I repeat, I hope to welcome you back in five or six years to God's country.

Dr. W. C. Alpers, of Cleveland, Ohio, president-elect of the American Pharmaceutical Association, greeted the members of the Women's Section on behalf of the parent organization:

If I should point to any particular moment of this agreeable stay in San Francisco as the most enjoyable, the pleasantest of all, I would say this is the hour, when I have the privilege of addressing you and extending the hearty greetings and good wishes of the American Pharmaceutical Association.

Since my membership in the Association, which this year is twenty-five years old, the idea of forming a Women's Section has been talked about a great many times. I even remember almost twenty-two years ago—probably there are some ladies—no, there are none here that are as old as that—the subject of forming a Women's Section was already talked about in quiet corners, but it was hushed over. However, the desire was there, and the desire grew and grew, and, instead of saying that it *might* be done, it gradually was said it *ought* to be done, and from saying it ought to be done it was said it *shall* be done, and now it is done.

I believe it was one of the happiest thoughts of some members of this Association to form this section. I believe there is no other influence, no other one element of influence that is so powerful, so strong to make our meetings a success as the presence of the ladies. It is well known that the influence of women over men is much stronger than appears on the surface. It is acknowledged all over the world, and I do not speak here of the man who in speaking to one of his friends said, "Look at me. All that I am I owe to my wife." And his friend said, "Well, we won't blame her for it."

I do not mean that kind of influence. I mean that quiet, patient influence for the good that women exercise over men. But if there is any class of men that need this influence and that are more susceptible to it than others, that class is the druggists, and there is a good reason for it.

I do not know if statistics have ever been taken as to how many druggists are successful and how many are not, and why they are successful, but I know if we could bring all the successful druggists in the United States together and ask them why they are successful, ninety percent of them would answer, "I am successful because I have a good wife."

No man in this world needs the influence of a good wife so much as a druggist. It lies in the nature of his business. He is confined more than any other man. He cannot go out at liberty as other people can. He cannot enjoy his evenings as other men can. He has to work when other men go to entertainments, to amusements, to see their friends, and he would break down under that continuous little care—it is not a big care at one time—but it is the continuous bearing down of the little things that work on the druggist's mind. He could not stand it if it was not for the beneficial influence of a good wife, of a happy family, and I know what I talk about. I have been one of them, and I have friends who have unbosomed their hearts to me, and I know that there are many, many druggists' wives who are the best assistants, the only good assistants of the husbands that they have.

After the day's toil and care, after they have done all the work they ought to do, their wives come down quietly back of the prescription counter and help in a patient, loving way, filling powders, rolling pills, and doing different things to help. If the druggist goes out to a troublesome customer, or to an annoying man or woman who makes demands that are out of place, and he meets them with a smile, a few kind words, and smooths things over, it is not his doings; it is the doing of that good woman behind the prescription counter, and her love, her patience, her devotion resound and re-echo from his heart and go over to the customer.

Those are the successful men, those are the successful druggists, and I have always said, and say to-day, that when the druggists come to these meetings and enjoy themselves, they should bring their wives, and any member of our Association who is loyal to the interests of the Association will bring his wife along. He ought to. She is entitled to a vacation as much as he is. She is as entitled to see something of the world as he is.

It helps in our deliberations, it helps in the whole atmosphere around us, to have the women present, and the larger your section will grow and the more influence you will gain, the more it will tend to the benefit of the Association, and these words are particularly true in the state in which we are now.

I was over in Berkeley the other day, visiting a married daughter there, and in the course of conversation she quietly remarked: " Yes, we voted for such a man." That word struck me; it went right to my heart. She did not say " I voted," she did not say " My husband voted," but " We voted." Of course, they voted together, as all men and women do when they are husband and wife, but that " We voted " brought home to me the fact that women vote in this state. I had never thought of that question a great deal. I had, of course, read about the suffrage movement as well as any other man, but I never paid much attention to it. I am firmly convinced that women have as much right to vote as men. Why shouldn't they? They are fully as intelligent; but I never thought much about the question until this little remark brought it home to me.

It is different with us. Men of education, men of refinement do not wish to vote in the eastern states because they meet people there they do not like, that they do not care to associate with, and, rather than do their duty, their repugnance against association with these people keeps them away from the polls.

Here, I see, they have the voting place in the high school, not in the saloon, as in the eastern states. So it is all around, and that whole question appealed to me at once in an entirely different light, and I believe right now I am a suffragist. (Applause.) There is no question about it at all, I can see the beneficial influence, and I believe this influence of the women shows not only, as I said before, in the Association; it shows in the state.

I know the time when people spoke of San Francisco as a place of gamblers, of frauds, of robbers, of murderers. That was in the beginning, when only men came here, when the city was founded, when the first rush for gold, the greed for wealth, brought them here. Now all this has changed. This man brought his mother, the other brought his daughter, and at once the influence of the women was shown. Instead of a place that everybody disliked and loathed, we now have a beautiful city here—not only a beautiful city, but a beautiful state, beautiful beyond all description. I heard so much of California before I came here, my daughter wrote me so much and I read about it, but it is all unequal to the reality, for what I have seen surpasses everything I ever expected to see.

In these words I do not exaggerate. It is the beauty of the country, the beauty of the flowers, the frankness of the men and the women, the size and elegance of your buildings, and, above all, the grandeur of Nature all around, that impresses a man who has any sense, any gift of observation, and it impressed me, and I could not help thinking what an influence California must have had on the men that came here as the first pioneers—rough, coarse men—and this influence has continued in the same way till to-day.

This year hundreds of associations come here, all kinds of associations—scientific, industrial, economic, whatever object they have in view—they come here for their deliberations. Of course, they have, each of them, a specific purpose in view, but they do more than that. Each one helps the other; each one helps the state, each one helps the country, each one helps the world, for every one of these associations, no matter what their ultimate object is, is trying to do something good in some way in their sphere as they see it, and each time the men and women of these associations pick up, you might say, a little brick, and add it and build up their big temple of enlightenment and civilization and happiness, and so you will help in this work. Be it ever so little that you will contribute to this temple of happiness, I know you will do it, and our Association will do it, and then right from this state we may go over this country and we may go to other countries.

Think what a remarkable difference there is just this year between our beautiful, beloved country and the countries beyond the sea. We are engaged, like these hundreds of other associations, in peaceful work, in work of enlightenment, work of happiness, and over there men and women kill and slaughter each other It is a terrible thought to have, and it is again the women to whom mankind must turn to remedy this thing. It is women who can recognize and can see better than any one else the power and necessities of a peaceful, good home; and if international peace is ever brought about, it will be accomplished by the wishes, by the deeds, and by the actions of the women of all countries.

Do not deceive yourselves with this beautiful patriotism and devotion to your own country. We see a young man go out to war. We are proud of him, his sister is proud of him. Look at him; his face flushes with courage, with enthusiasm, with inspiration for his country. He wants to be a hero, and we admire him. We cannot help but admire him, and so he goes out. But they do the same in other countries, and the whole trouble is that our thoughts have stopped there. We think only of the beauty of heroism. We do not think this same man whom we admire goes out to kill, that he goes out to slaughter other men who also have mothers, also have sisters, also have their admirers. But a change will come as soon as we realize our mistake in worshipping war, men of war, generals and soldiers, and so we should do all we can to abolish this feeling and to substitute for it a feeling of brotherly love—international brotherly love.

But I have, perhaps, gone too far on this matter. There are so many beautiful things to see in California, there are so many points of interest, so many thoughts that carry us forward involuntarily, that a man does not know where to stop, but I must stop. I will not detain you any longer in your deliberations.

I can only repeat that I bring you the heartiest greetings of the mother Association, the American Pharmaceutical Association. I know that your deliberations will be guided wisely and conducted with great care and thoughtfulness, and I know whatever you do, whatever you decide, you will do it to further the purposes of the American Pharmaceutical Association and pharmacy in general.

The President: I wish to announce as members of the Resolutions Committee, Mrs. Godding, of Boston; Mrs. Pease, of Nebraska; Mrs. Snow, of Chicago; Mrs. Beal, of Illinois, and Mrs. Alpers, of Cleveland.

Mrs. Whelpley, second vice-president, occupied the chair while the President read her address.

PRESIDENT'S MESSAGE.

Madam Chairman and Ladies:

It gives me pleasure to greet you at this, The Third Annual Meeting of the Women's Section of the American Pharmaceutical Association.

I deem it a privilege to visit the city of the Golden Gate, with its beautiful harbor, and at this time the Panama-Pacific Exposition, a monument to the courage of a great state. From past experience, I assure you that if you partake of the genuine good spirit of these California people it will indeed be a joyous time for every one. The proverbial hospitality of the South is no more pronounced than in this state of the Golden West.

We have gathered from far and near to discuss the problems and experiences of women interested in pharmacy. No field seems to offer greater opportunity right now than this one. Particularly in the cities in the demand for women as pharmacists. as clerks, in the hospitals and as managers of stores, we are finding our way. As wives of pharmacists, our responsibilities are not lessened, because the good American wife shares her husband's interests to the extent that an intelligent companionship helps solve many serious problems. A mere discussion of business ideals with a sympathetic wife cannot but help the tired business man over some hard places.

The object of this Section, as defined by our Constitution, is to emphasize the right and capability of women to engage in all pharmaceutical pursuits, to unite the women members of the American Pharmaceutical Association and the women of the families of the American Pharmaceutical Association, and to coöperate in the promotion of the general progress of pharmacy. In a plan so far reaching there will always be new fields to conquer.

We hope these sessions will bring forth many interesting things that will help us in our life-work, whether as pharmacists or the wives of pharmacists.

For the serious consideration of the Section, I would recommend that as women we become interested in pharmacy as taught in our schools, to know if the home instruction will help the boys and girls begin aright; also the university courses. Shorter hours should be of supreme importance to women—first, because the excessive number of hours our boys must work is sapping their vitality and injuring their health, sometimes permanently. Is it not a mother's concern? And then as wives we spend too much of our lives alone: few other professions demand such sacrifices. Let us hope for a time when the home of a pharmacist may have as much time for companionship as any profession.

To the membership committee I would suggest that a campaign be carried on in districts, each member of the committee have a certain number of states to look after, and thereby become acquainted, during the year, with all the women who should become members of the Section. Also they might interest some pharmacists in becoming members of the American Pharmaceutical Association.

For the benefit of incoming officers, some definite plan of work might be formulated, during the year, so that as the Section passes into new hands there will be no time lost in correspondence, but the work begin with the year.

I am deeply conscious of the honor bestowed upon me by this Section in making me your president, and I wish to express my sincere appreciation to those who imposed their confidence in me.

If I have failed to further the work, I assure you it has not been for want of sincere desire, but rather because of my short experience and acquaintance in the Section.

I especially wish to thank our faithful Secretary for her untiring efforts, also the Executive Committee for the splendid program it has provided for this meeting, the chairmen and members of all committees, who have shown a sincere interest in the work.

As I retire from the chair I hope to become an active member of the Women's Section, that I may continue the acquaintance of the women who made it a reality and thereby continue in the forward movement of the American Pharmaceutical Association.

ELIZABETH H. CULLEY, *President.*

The President's address was accepted and referred.

The President: We will now listen to the Secretary's report.

REPORT OF THE SECRETARY OF THE WOMEN'S SECTION.

Your Secretary regrets to submit practically no report for the past year beyond such correspondence as was necessary. Circumstances which could not be controlled prevented the accomplishment of plans outlined immediately following the Detroit convention.

However, as your Secretary has been continually in touch with the work since the organization of the Section in 1912, she trusts she will be pardoned the liberty of making a few suggestions and plans for the future which involve the work of other offices and committees not concerned in the Secretary's duties.

In the course of the work we find that members appointed to committees would be willing to work if they had the remotest idea of what was expected of them. In the past none of us have had any very clear-cut ideas as to what work should be undertaken by committees, and I believe the wise thing to do at this time is to discuss plans for the next year's work, and the suggestions which follow are merely suggestions for discussion.

The Women's Section has served its probationary period and must now show actual results.

While the work of the past year does not show up well on paper, nor is it in any way up to the expectation of the officers, I think we need not feel discouraged. There must be a time for growth, and I believe that we are making a constant internal growth; in fact, there are many evidences of it.

One of the difficulties encountered in our work was that too few women had identified themselves with the Section who could be assigned to duty, making the work of each committee of too broad a scope and too heavy for its members. Since our success depends on interesting a large number of women, the enlargement of committees would increase the number interested, broaden our territory, and divide the burden of committee work. Most of our women are so situated that this arrangement would appeal to them, but the parcelling out of a large amount of work and supervising of it is quite a task, and I believe each committee should have a chairman who should supervise only.

The Constitution sufficiently defines the duties of the officers, except perhaps the Treasurer and the Historian. So far our Treasurer has had absolutely nothing to "treasure," but it is to be hoped that the present meeting will devise some means for raising funds, and a few ideas are submitted under another head.

The work of a Historian in such an organization as this almost demands the help of a committee, and your Secretary suggests that it be understood that the Historian is to have a committee for a year or two, either appointed by the President or of her own selection. Anything the Historian might accomplish now perhaps would not be of much value in promoting our work, but in the years to come it will be an interesting study and of great comfort to us to know just what has preceded our efforts to elevate the status of women in pharmacy and the ups and downs encountered after our organization was formed. Also, these things would add to our prestige if we ever accomplish the room at the proposed American Pharmaceutical Association headquarters. We were told by American Pharmaceutical Association speakers at our initial meeting not to overlook the history of women, and the past will reveal some heroic efforts on the part of non-professional women who have, unaided, reared a family and a successful business on the ruin of a retail drug store. Your Secretary is preserving a number of papers and records to be turned over to the Historian, and also the photographs of the women members. The American Pharmaceutical Association has a photograph album of all its famous men in pharmacy, and we should make a like record.

Membership Committee.—This is the most important of our Section committees, for it is the link connecting us with the American Pharmaceutical Association. Last year we made the mistake of electing five members to this committee, while the Constitution provides for four elective members. Experience has shown—and I believe all workers on this committee will agree—that the committee is too small to properly cover the whole of the United States. I also believe that this should be an appointive committee rather than elective, so that more deliberation may be given to the selection of its members and also to secure the consent of its members to use their names on this committee. Otherwise we are handicapped because the members are not able to give any time to the work. I would therefore propose the following amendment to the Constitution:

Section 4, Article I, paragraph 4: "The Membership Committee shall consist of eleven members of the Section, composed of a supervisory chairman and ten active workers, who shall be appointed by the President."

The thought also comes that this committee might better serve its purpose if the retiring President made the appointment, since she would be more in touch with the members than the incoming officer.

As to plans for the committee, I would suggest dividing the country into ten divisions, giving each working member five states as her territory. With the assistance of the supervisory chairman, the records in the Secretary's office, and the work already done, this would not be an unwieldy territory for any one person. We need not confine our efforts to women pharmacists alone.

Divisions.

I.	II.	III.	IV.
Maine,	Connecticut,	Maryland,	South Carolina,
New Hampshire,	Rhode Island,	Virginia,	Tennessee,
Vermont,	Pennsylvania,	West Virginia,	Georgia,
Massachusetts,	New Jersey,	District of Columbia,	Alabama,
New York.	Delaware.	North Carolina.	Florida.

V.	VI.*	VII.	VIII.
Mississippi,	Kentucky,	Illinois,	Kansas,
Louisiana,	Ohio,	Wisconsin,	Nebraska,
Arkansas,	Indiana,	Missouri,	South Dakota,
Texas,	Michigan.	Iowa,	North Dakota,
New Mexico.		Minnesota.	Oklahoma.

IX.	X.
Colorado,	Arizona,
Wyoming,	Nevada,
Montana,	California,
Idaho,	Oregon,
Utah.	Washington.

* Omitting Indian Territory leaves one division short, which was placed in a thickly-populated district.

The literature used by the committee should be prepared by the chairman in coöperation with the chairman of the General Membership Committee of the American Pharmaceutical Association, in order that all circular matter may be uniform, and special letters referring to our Section should be submitted to him for approval.

It may be surprising to some of our members to learn that we have in our files between 500 and 600 names of women pharmacists only a small proportion of whom are members of the American Pharmaceutical Association. In addition, the membership of the American Pharmaceutical Association must represent at least 2000 women who are eligible to membership in our Section. It is evident that we have plenty of material to work on.

Mrs. Fennell, of Cincinnati, reports the names of all the wives of the local A. Ph. A. Branch members there, all of whom wish to be enrolled in the Section. This is an idea for all of us to work up.

Press Committee.—In this committee we have a powerful agent for spreading the American Pharmaceutical Association gospel, and with the material at hand we should keep up a breezy news regarding American Pharmaceutical Association affairs throughout the twelve months in the year in every possible publication.

Some time ago your Secretary, in studying over this press work, made a crude outline which may serve now as a nucleus on which to build the plan for next year's work. Under each locality is found the material to work on and the publicity medium for using it. The same division of territory might be used as suggested for the Membership Committee, and here I would also suggest a large committee. The popular magazines and the Sunday papers are suggested because of an idea given in a paper read before the Section last year that we should write fiction portraying the pharmacist as he is—a public benefactor—rather than the untruthful and grotesque pictures drawn of him by the average fiction-writer. As an example, the ridiculous article in Pearson's last winter and a more recent article in the Saturday Evening Post on the subject of chain stores are cited. Some of our women who are gifted in a literary way could easily write as good fiction as the magazines publish today; interesting articles illustrated with a kodak picture will be accepted by almost any of the magazines; allied trade papers will also accept such matter; our drug journals will publish similar matter and are glad to have news of the work we are undertaking, and the A. Ph. A. JOURNAL, I am sure, will give us all the space we want. Each member, whether a committee member or not, should use every opportunity to get items in their local papers, their club papers, etc., for all publicity, even though it may seem irrelevant, will have its good effect.

Plan for Publicity Work of the Women's Section.

Local and county.	State.	National.
Local retail druggists Local drug associations Colleges A. Ph. A. Branches Hospitals Wholesalers Travellers County branch of state association	Women's Auxiliary Travellers' Auxiliary Wholesale druggists Colleges	National pharmaceutical organizations Faculties Boards Hospitals Government service
MEDIUM.	MEDIUM.	MEDIUM.
Daily, weekly, and Sunday newspapers, especially Women's Department Federated Club Bulletin Meetings of all pharmaceutical organizations	Official organ of state association Travellers' Bulletin Wholesaler's house organ College paper Drug journal Allied trade journals	Popular magazines Sunday magazine section of newspapers Drug journals Allied trade papers JOURNAL OF THE A. PH. A.

District chairman to supervise all activities, local, state, and national.

Special work in convention city to work up next convention, supply pictures, articles, etc., to district chairmen.

Seek work in connection with local women's clubs on welfare work.

Medical school inspection, sanitation, etc.

Outlook Committee.—What do we want to do next year?

We should keep in mind such objects as: Aid to women pharmacists. Aid to the retailer through improved store conditions, such as hours, trade customs, cut rates, etc. Encourage women students in pharmacy. Investigate education of women students wishing to take up the study of pharmacy. Real success cannot come without the proper preliminary training, and we should not encourage them to make this mistake. Coöperation with women's clubs. Should we aim for ultimate affiliation with the National Federation of Women's Clubs?

The Secretary has sent out a *Questionnaire* to women now engaged in pharmacy which should bring much information which would be valuable material for this committee.

No doubt the chairman of the Outlook Committee will have some valuable suggestions for the coming year, but whatever we undertake, the committee will be handicapped without funds, and it is hoped that some plans will be made for securing the necessary funds. A letter was sent to some few of the officers for approval from the Secretary's office, but was not sent out generally to the membership because it was thought best to wait the discussion at the meeting. This letter was as follows, but should be changed in the fourth paragraph to meet a year's work instead of a few weeks preceding the annual meeting, for which the letter was prepared.

A PLAN TO RAISE FUNDS FOR THE WOMEN'S SECTION.

> Our Constitution, among other objects, names these two: "To unite the women employed in pharmaceutical pursuits for mutual encouragement and assistance," and "to coöperate in the promotion of the general progress of pharmacy and the American Pharmaceutical Association."
>
> The Women's Section is now sufficiently well established to take up a definite line of work and show results. The two objects quoted above have been selected because they seem more important now and something may be accomplished along these lines in the immediate future.
>
> Ever since the Section was established the question of funds has been discussed to some extent, but no definite action has been taken. The reason for this has probably been due to the fact that a young organization of national scope finds it very hard to raise funds except by assessment of the whole membership, and this is hardly possible in the Women's Section for various reasons.

The American Pharmaceutical Association allows a commission of $1 each on new memberships secured by local branches, and our Section has this same privilege. If we would secure 50 new members between now and the August convention, we would have a fund of $50 toward carrying out the first object mentioned above, while at the same time carrying out the second.

The three following objects for the work of our Section have been suggested to your Secretary: (1) The establishment of a scholarship for women pharmacists in some college; (2) the equipment of a room in the proposed A. Ph. A. building; (3) awarding of prize A. Ph. A. memberships to women graduates in pharmacy for proficiency in some branch.

These objects are all worthy our efforts, but the first two seem out of the question just now; we could not raise a sufficient sum of money to endow a scholarship in less than a number of years, and the A. Ph. A. building is as yet only a project. We can, however, out of a sum of $50 to be earned as mentioned above, award ten prize memberships to women graduates. This would also be turning the fund back again to the Association.

If this plan is adopted, all applications secured should be sent direct to the Secretary or some other officer for record before being turned over to the Association. Please let us have other suggestions at once. In the meantime the Membership Committee will claim the $1 on all applications secured.

Will you not agree to get one or two members for the American Pharmaceutical Association at once to help out the Section work?

Kindly advise the Secretary at once of your approval or disapproval of the above suggestion, as we should have a majority favorable to the plan before going ahead.

The following information is desired by the Women's Section of the American Pharmaceutical Association to complete its records of the women pharmacists of the United States and to enable it to work toward better conditions for women pharmacists.

Will you not kindly coöperate with us to the extent of filling out the blank below and returning to the Secretary?

Name ....
Business address ....
Home address ....
College Degree ....From what college ....
If no degree, what college training ....
What preliminary education ....
Registered ....Registered Assistant ....
What experience in drug store ....
Labor laws of your state. Do they interfere with your securing employment on the same basis as men pharmacists?
How do salaries in your section compare with those paid to men for the same work?
To what do you attribute the difference?
Do you meet with any difficulties in your work that a man would not encounter?
Hospital pharmacy. Does your state law require that hospitals employ registered pharmacists? To what extent is the law enforced?
How can the Women's Section be of service to you in changing working conditions?
Remarks ....Please make suggestions freely.

In correspondence with the A. Ph. A. officers we are cautioned that if we adopt the plan of asking for this $1 on each membership we must be careful not to conflict with the local branches.

Hospital Committee.—The work of this committee is more or less technical, and I would suggest that the present committee be retained another year. They have been quite active, considering the short time they have had to work, and have made up a framework on which they could perhaps build more successfully than a new committee, which would have to start all over again. Also, the committee is rather well distributed as to territory.

The President may see fit to appoint still further committees to supplement the work of our present ones, and your Secretary would favor any committees which would increase the number of women in actual contact with the Section.

Another matter to be brought to your attention is the evident misunderstanding by many of the relation between our Section and state associations or their women's auxiliaries. We must not forget that we cannot accept the services of women who do not have an A. Ph. A. member in the family, but wherever we find women willing to coöperate with us we should attach them to us by securing the needed membership to make their assistance legal.

I would suggest that all the members present at the meeting be asked to sign a pledge to devote some little time and thought to the work of the Section during the next year, and some means might be devised to find out each woman's special fitness for certain work. I have met so many women who tell me that they are so thoroughly domestic that they could not do anything to help us, and yet they show by this very statement that they would help if they had some specific task assigned them, but the committees are not personally acquainted with them and do not know where they would fit in best.

I am more pleased than I can express at the earnestness growing up among our workers. It is encouraging to those of us who have had to bear the trials of organization, and it speaks more than any other one thing for the ultimate success of the Section.

Finally your Secretary regrets that she will not be present at the meeting, but will be with you in spirit, wishing you a pleasant and profitable meeting.

ANNA G. BAGLEY, *Secretary.*

The President: Will you accept the reports of committees as a whole, or will you discuss and accept them one at a time? What is the pleasure of the assembly?

Mrs. Whelpley: I move we adopt them as a whole.

The President: It is moved we adopt them as a whole.

(The motion was put and carried.)

The President: I will now call for the Report of the Executive Committee.

REPORT OF THE EXECUTIVE COMMITTEE.

The Executive Committee has little to report—not because nothing has been done, but because the work is not of a nature that lends itself to much comment. No special business has been brought to our attention, and the work has been confined almost entirely to planning this program.

I wish to express my appreciation to all who have in any way assisted, particularly to the officers of the Section and those having a part in the program. But for them this committee would have little to show for its labor. I have only commendation for those who have some other part in the program. The fact that you have done so indicates your interest. Those who are here in attendance at this meeting, by that very fact are giving ample proof of their interest. If what I am about to say seems unduly severe, be assured it does not apply to either of these classes. If I make any criticism, I should like it to be constructive, not destructive.

It is evident to me that there must be more interest if this Section is to realize in any large measure the hopes and ideals of its originators. In the one matter of obtaining papers for the program, the indifference shown was surprising. Requests were rarely refused, but often ignored, and we all know open opposition is easier to contend with than indifference. It is impossible to say where the fault lies, but it may be the personnel of your Executive Committee. If so, I am sure the members would gladly retire. Do not the women of the American Pharmaceutical Association want this Section? There can be no doubt that wives of druggists are deeply interested in the profession. This Section was provided for them, and it is hard to believe that they do not want it. Is it the form of the organization? That seemed to be settled last year to the satisfaction of all. Is it the presence of the women druggists? They have been pleased to coöperate, but they may participate in the work of the other sections, while the non-professional women are limited to this. This is preëminently their section. Whatever the reason, the condition exists, and something must be done to remedy it. The members of the Executive Committee would welcome any information as to the cause or suggestions as to possible treatment.

Respectfully submitted,

ZADA M. COOPER.

The President then called for a paper by Mrs. Timmons, of Valparaiso, Ind., on " The Pharmacist and Public Health." The reading of this paper was followed by the committee reports, which were read in the order named: Hospital Committee, Miss Bertha Ott, chairman; Outlook Committee, Mrs. E. A. Ruddiman, chairman; Press Committee, Mrs. Timmons, chairman; Membership Committee, Mrs. Gray, chairman.

REPORT OF COMMITTEE ON HOSPITALS.

This committee wishes to express its appreciation for the honor and privilege granted women pharmacists active in hospitals to become a factor in the Women's Section, and, through same, established in the great and eminent American Pharmaceutical Association.

This committee having been but recently appointed, we wish to state a few objects in our plans, to be carried out when time and circumstances will permit.

1. To encourage every woman pharmacist engaged in institutional pharmacy to become a member of the Women's Section of the American Pharmaceutical Association; also take active part in the work of the branches of this Association in their respective cities.
2. With the aid of these members, give our hearty support to that part mentioned in our Constitution under Section I and Article 2, which is to labor for the improvement of legislation regulating the registration as pharmacists of women employed in the practice of pharmacy in hospitals and similar institutions.
3. To work out a satisfactory system by which the hospital pharmacist can keep a record of narcotic drugs.
4. Method of fumigation that will be most effective. Stock mixtures—what medicines should be allowed in the ward drug closets. General economy in manufacturing and convincing the hospital management that to do the manufacturing is economical, even though it necessitates a bit of apparatus.
5. Later this committee may be able to support an employment bureau, aiding those pharmacists who wish to exchange positions in institutions, or pharmacy graduates who wish to enter same.

We are happy to know that Providence put this motive of consideration for their sister pharmacists in institutional pharmacy into the hearts and minds of the women who organized the Women's Section of the American Pharmaceutical Association. This organization being a national body offers us great opportunities, which no other organization can give, and many an isolated worker in this great field of hospital pharmacy will gladly take hold of this privilege and help raise its standard to the best in the land.

BERTHA OTT.

REPORT OF THE OUTLOOK COMMITTEE.

When appointed chairman of the Outlook Committee, I had not a very clear idea of the duties of the committee, but found we were to suggest new lines of work for the Section in order to make it more efficient. Following out this idea, I wrote to the different members of the committee and asked for suggestions. Some have responded.

One suggestion is that the Women's Section emphasize and encourage the use of American-made goods. This is right in line with the trend of business thought of the whole country at present.

Another line of work would be to take up the subject of shorter hours for druggists, with the purpose of educating the public to demand a decrease in the number of hours of work daily and partial closing on Sunday. To accomplish this a central committee of the Women's Section should be appointed whose duty it shall be to prepare articles on this subject for publication in the trade journals, magazines, and daily papers throughout the country. This committee could use material from any source and should coöperate with the Women's Sections of the state associations and the other national organizations. The articles thus prepared should be sent to the different sections of the country for dissemination by the local members.

Included in this report are the recommendations of Mrs. Hampton Ray Kenaston, a member of the committee, which are enclosed.

I hope that these suggestions may be of some use to the Section and that you will have a very successful meeting.

MRS. E. A. RUDDIMAN, Chairman.

Mrs. H. R. Kenaston: To be appointed as one of the members of the Outlook Committee of this distinguished body is a rare privilege, and I wish to assure the ladies who requested this service from me that I regard this appointment as an honor that any one should be proud to accept.

As a result of careful consideration, I wish to offer the following for your consideration, with the full assurance that only that which is for the greatest benefit will become effective as a portion of the deliberations of the session:

Recommendations.

1. The *Committee on Botany and Medicinal Plants* shall be appointed by the President of the Women's Section, American Pharmaceutical Association, as follows: One member to be appointed for five years, one for four, three, two, and one year respectively, each vacancy occurring by expiration of term to be filled by a new appointment for five years. The committee shall elect its own chairman annually. It shall prepare a compilation of current topics in botany, with special reference to medicinal and economic botany as pertains to their connection with the conduct of the profession of pharmacy.
2. The President of the Women's Section, American Pharmaceutical Association, shall appoint annually a *Committee on Educational Work,* consisting of one member from each state represented in the Women's Section, American Pharmaceutical Association, whose duty it shall be to interest the student body of the high schools, universities, and other institutions of learning that include young women, to engage in the study of pharmacy, and endeavor to present to the young women the comparative advantages of engaging in the profession of pharmacy at the period of their lives when they would be deciding upon their life-work.

REPORT OF PRESS COMMITTEE.

The following report of the Press Committee is respectfully submitted. Each member of the committee was asked to send an article outlining the purpose and work of the Women's Section of the American Pharmaceutical Association, to the drug journal nearest her. These were to appear in the July issue. The chairman, being nearest to Chicago, took it upon herself to get a notice in the Western Druggist of that city.

An announcement of our Section was made at the Indiana State Pharmaceutical Association, and an invitation extended urging the women to attend our sessions at San Francisco.

A splendid article by our Secretary appeared in the April number of the Era; also notices in the A. Ph. A. JOURNAL sent in by the same worker.

CECELIA TIMMONS, Chairman.

REPORT OF MEMBERSHIP COMMITTEE.

The members of my committee were duly notified of their appointment and assistance offered to help them in any way that could be done.

One member of the committee responded, assuring me of her active interest in the work and adopting the plan of sending to each druggist in the Twin Cities of Illinois a personal letter with the "Why" circular enclosed along with a membership blank, and then, a little later, of calling upon each druggist in person and asking him to join the Association.

From District No. 5, comprising the states of Kansas, Missouri, Nebraska, Iowa, South Dakota, North Dakota, and Minnesota, Chairman Zada May Cooper reports that from the latest reports of each state lists of names of women druggists were compiled and an effort made to get a woman druggist in each state to act as chairman. Two acceptances were received—Mrs. Hampton Ray Kenaston, of Bonesteel, South Dakota, and Mrs. Minnie M. Whitney, of Kansas City. Mrs. Kenaston has done efficient service, writing personal letters to all those actively engaged in pharmacy, and securing one new member—Mrs. Janie A. Hagerty, of Avon, South Dakota.

Mrs. Whitney was furnished a list of names of women pharmacists in the state of Missouri, but at this writing no report has been made, but I am sure that she has done excellent work in interesting the young women pharmacists in the Association. The one woman pharmacist in Minnesota could not serve, the one in Nebraska made no reply, and the woman pharmacist in Kansas did not respond. The chairman wrote forty personal letters to the Minnesota women, ten to North Dakota women pharmacists, and eight to women in South Dakota. To most of these copies of the proceedings of the Women's Section were sent, either of the Nashville or the Detroit meeting, or both. Sample copies of the JOURNAL went to the women in the Dakotas also—but not a single response from any of these was received. Nothing has been done in Nebraska or Kansas. The state of Iowa was pretty well covered last year, and hence no general effort was made this year in Iowa, my work being limited to those few people that I met, whom I had not approached before.

The number of women registered as pharmacists in North Dakota is fifteen and South Dakota has fifteen full registered and ten registered assistants.

District No. 3, comprising the states of Ohio, Indiana, Kentucky, Illinois, Michigan, and Wisconsin, reports:

The greatest part of my effort was put into the state of Wisconsin. From a list of sixty women pharmacists in this state the names of fifty were selected to be addressed. To twenty-five of these known to be actively engaged in the drug business, personal letters giving, chiefly, the objects of the Women's Section, were sent, also an application blank and a folder, "Why Every Pharmacist Should Become a Member of the American Pharmaceutical Association." This little folder briefly stated the objects of the American Pharmaceutical Association, the benefits to be derived from association with the American Pharmaceutical Association, a description of the official organ—the JOURNAL OF THE A. PH. A.—and the favorable comments of the several allied associations.

To nineteen other women pharmacists in Wisconsin went a copy of the proceedings of the Women's Section of either the Nashville or the Detroit meeting and a brief note as to my object in sending them the proceedings, and to twelve other women were sent the "Why Every Pharmacist Should Become a Member of the American Pharmaceutical Association" circular, with my name and address as one of the Membership Committee. Thirty-two were mailed to as many women pharmacists in the state of Kentucky; six to the women in Indiana, six to Illinois, two into Ohio, and two to women located in the State of Missouri.

Owing to insufficient address, nine pieces of mail were returned: these were re-addressed to the women pharmacists in Illinois. Replies were received from three women, regretting their inability to become members, but hoping to take membership at some future time.

One membership was received, that of Miss Lilian Vorsanger, 2354 Milwaukee Avenue, Chicago.

An acquaintance, a travelling saleswoman, kindly consented to call the attention of the women pharmacists whom she meets in the course of her travels to the objects of the American Pharmaceutical Association as she had opportunity, thus giving the personal element, that counts for the most in this line of effort.

Since our last meeting a list of names and addresses of 263 women pharmacists has been compiled from personal items in the drug journals, the druggists' directories, and from various other sources. This list has been filed with the Secretary for future use.

During the month of April, 1915, a thorough canvass was made for women pharmacists in the state of Illinois by the Membership Committee of the Women's Pharmaceutical Association of Chicago. The result of the canvass shows that there are 110 registered women pharmacists, 30 registered assistants, and 48 registered apprentices in the state of Illinois. These data are available for our files. It also shows the willingness of the local women's associations to coöperate in the work of the American Pharmaceutical Association and the Women's Section.

Respectfully submitted,

M. M. GRAY, *Chairman.*

The following letters were sent to Mrs. Gray after she had forwarded her report to the Secretary:

611 INDIANA AVENUE, URBANA, ILL., July 25, 1915.

My Dear Mrs. Gray:

As the time is approaching for the San Francisco meeting, I know that I must send in my report, even if it is *a blank.* I can't tell you how much I regret this, but what can one do to change the set opinions of so-called pharmacists who "see no earthly reason why" they should join the American Pharmaceutical Association, and have not sufficient interest in the matter to treat a solicitor with more than scant politeness when trying to *give them some reasons?*

I have used my ammunition (A. Ph. A. Membership Committee Stationery) faithfully, and, in the case of our local druggists of the Twin Cities, I not only wrote them, and sent the "Why" circular and an application blank, but called on them personally, only to receive a rebuff in every case but one; the one giving as his plea for declining to join the Association at this time that he "could not spare the $5."

The first proprietor of a drug store upon whom I called said he had not seen any letter from our office; "Possibly it was somewhere in the accumulation of stuff not yet looked over," etc. I also inquired as to the fate of various articles of printed matter which we had distributed within the past few months (reprints of various addresses made by Dr. Beal at the I. P. A., at the New Orleans meeting of the A. C. S., etc.), but none of these had been noted by the gentleman, and had presumably found a resting place in the waste-basket.

At another place the proprietor said he "had no prescription business any more, that he sold but little except 'patent medicines,' and that he felt guilty for accepting the people's money for such *slop*"; "that he was not a member of the Illinois State Association, and never expected to be; was in the business because his father was before him, and the sooner he got out of it the better."

Still another is a member of the "United Drug Company's" organization and attends the semi-annual meetings, where, he says, "they do a lot of business and don't spend the time in sight-seeing, side-trips, etc., as the A. Ph. A. members do." Saw no reason whatever for giving out his good money for membership in the latter. And so on to the end of a very tedious round of calls which, I am free to confess, left me rather in a disgusted state of mind as regards our local druggists, who, as one of them said plainly, "are after the dollars," and don't care for the professional side of the business, which brings them no money.

Will give only one more instance of the ignorance and narrow-mindedness with which we must contend in this membership campaign. A pharmacist who has been in business *thirty years* asked me *"Why the American Pharmaceutical Association did not pass laws* to prevent dispensing by the doctors, and also why they did not prevent the big manufacturing houses from taking over all the compounding which properly belongs to the pharmacist." As if the American Pharmaceutical Association *could* pass laws! I tried to show him that the Association is not a law-making body, but that it has a powerful influence with the national law-making bodies, and that it is his duty as a professional man to become a member of the American Pharmaceutical Association and contribute his quota of dues and influence to secure the right sort of legislation touching pharmacy.

Again regretting that I must send you such a report as this, and trusting that other members of the committee have been able to make a better showing, I am,

Sincerely yours,

MARY L. CREIGHTON.

MISS ANNA G. BAGLEY,
Columbus, Ohio.

CINCINNATI, Ohio, July 25, 1915.

Dear Miss Bagley:

As a member of the Membership Committee of the Women's Section of the American Pharmaceutical Association, I report the work done by me during the past few months. I have given out all of the literature sent me by the chairman, Mrs. Gray, and have talked American Pharmaceutical Association on every occasion. I enclose a list of the names of wives of members of Cincinnati Branch of the American Pharmaceutical Association to whom I have talked for the Women's Section. I found a number who did not know there was a Women's Section, but am glad to say that the majority of them were well posted on A. Ph. A. matters, being able to read the monthly publication of the Association. All these ladies wish to be enrolled as members of the Women's Section.

Miss Leichtenfeld, Miss Stier, and Mrs. DeGardner (*née* Kleinknecht), all graduates of the Cincinnati College of Pharmacy, have made application for membership through the local Branch; a few have promised to become members in the fall, and a number expressed a desire to attend a meeting of the Section to know more about the work before becoming members. All these are college graduates, engaged in business, and will be a great addition to the Women's Section. Some of the women thought there might be a possibility of forming branches in the women's organization similar to those of the men's organization.

I am sorry lack of time prevented my being more active in this very good work. My best wishes are for a very enthusiastic convention and future success of both the American Pharmaceutical Association and the Women's Section of the American Pharmaceutical Association.

MRS. C. FENNEL.

The President: That finishes the reports. There are some recommendations in the Secretary's report. Shall we accept all the reports as one, or shall we hold the Secretary's report for discussion? There are some recommendations as to changing the Constitution in that. You cannot accept all of the reports at one time if that is to be considered. Will you discuss that at this time and meeting, or shall we defer it to the next session or refer it to a committee? What is your pleasure?

Mrs. White: I move the Secretary's report be referred to a committee.

(Motion carried.)

The President: We will refer the Secretary's report to a committee. Will some one move to accept the rest of the reports?

Mrs. White: I move they be accepted as read.

(Motion carried.)

The President: They are accepted. Is there any new business to come before the session? If not, this meeting will be adjourned, to meet Thursday afternoon, in the Red Room of the Bellevue Hotel. I hope we will have a quorum to listen to the papers. There are four other good papers, and we also have the election of officers at that meeting. It will be quite important that we have enough present who will remain, and that we will not dwindle down to a mere handful, as we have done to-day. We will adjourn until Thursday.

(*To be continued.*)

SECTION ON HISTORICAL PHARMACY, AMERICAN PHARMACEUTICAL ASSOCIATION

EAST INDIAN VOYAGES OF THE SIXTEENTH AND SEVENTEENTH CENTURIES IN THEIR RELATION TO DRUGS, SPICES AND DYESTUFFS.*

BY ARTHUR W. LINTON.

PORTUGUESE VOYAGES.

At the beginning of the fifteenth century, when Venice had already firmly established herself as mistress of the Mediterranean, the little kingdom of Portugal, on the west coast of the Iberian Peninsula, had hardly begun to think of commerce and exploration. At this period Portugal possessed no vessels better than half-decked sailing craft carrying crews of 36 men. (H. Morse Stephens, " Portugal," p. 144.) However, at a time when most of the noble youth of Portugal saw no road to distinction other than fighting the Moors, one prince of the royal house was granted wisdom to see that there were other things worth while. Prince Henry, known to history as " The Navigator," was the third son of King John I. We read of him: " This prince devised how he might advance the honor of his name and order in the discovery of countries not yet known. He spent his life in single estate, and chose the clear air of Cape St. Vincent, that he might better extend his mathematical theory, the practice thereof in instruments, and the use in sending out ships at his own charge to discover remoter parts. He caused Master James, skilful in navigation and cards and sea instruments, to be brought into Portugal to erect a school of marineship and to instruct in that mystery." (" Purchas his Pilgrimes," i, pp. 9–15.)

From the first, Prince Henry seems to have dreamed of being able to wrest the profitable Indian trade from Venice by finding a sea route to the Spiceries; at any rate, he established on the extreme southwestern point of the continent of Europe the school in which were to be trained the daring navigators who would find and win for Portugal an empire beyond the seas. Here Prince Henry gathered around him a group of choice spirits, not only mathematicians and cartographers, but navigators of experience as well. Here came for instruction, not only the sons of Portugal, but men from other countries.

Prince Henry himself never made an ocean voyage, but from 1418 onward seems to have sent out an exploring expedition nearly every year. The first voyage accomplished little, but in 1419 or 1420 one of Henry's captains discovered (or rediscovered) the Madeira Islands. Succeeding expeditions worked farther and farther down the African coast, until, at the time of Henry's death, in 1463, 1110 miles of coast line had been explored by the Portuguese, as well as the islands of Madeira, Cape Verde, Azores, and Canaries. When Henry passed away, only a relatively small part of the long distance to the Indies had been travelled, but the Prince had done much to merit the gratitude of his countrymen. He had promoted the colonization of the island groups which had been discovered, and successfully introduced in them the culture of the vine and sugar-cane. (Stephens,

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* Continued from p. 255, March issue.

"Portugal," p. 145.) He had secured from Pope Martin V a perpetual donation to the crown of Portugal of whatever should be discovered from Cape Bajador to the Indies, together with plenary indulgence for the souls of those who should perish in conquest. (" Purchas his Pilgrimes," ii, pp. 13–14.) Most important of all, Henry had created in the hearts of the Portuguese a determination to continue the national career of exploration.

An enumeration of the various stages in the progress of the Portuguese down the west coast of Africa would be tiresome; however, the following may be noted: In 1434 Cape Bajador was rounded, in 1441 Cape Blanco, in 1445 Cape Verde, in 1447 the Azores were discovered, in 1455 the Cape Verde Islands and the coast of Senegal, in 1462 the mouth of the Niger, in 1484 the mouth of the Congo. Already the Portuguese voyages had extended the knowledge of pharmacognosy, for in the Congo region, if not farther up the coast, the explorers found the plant-producing " Grains of Paradise." This drug or spice was known in Europe long before this time, having been brought overland to Monte di Barca, on the coast of Tripoli, and from thence by the Venetians to Europe. The native name was *Melegeti* or *Melegette,* but because it came from an unknown region and was highly esteemed it became known as " Grains of Paradise." Flückiger and Hanbury mention a record of a curious *fête* held at Treviso, in 1214, in which a sham fortress defended by twelve noble ladies and their attendants was stormed and carried by knights armed with flowers, fruits, sweetmeats, and spices, among the latter being mentioned "*Melegetæ.*" (Flückiger and Hanbury, " Pharmacographia," p. 652.)

To return to the Portuguese and their explorations: The year 1486 was a notable one. In this year an expedition sent out by John II, under the command of Bartholomew Diaz, reached the bold promontory known to us as the Cape of Good Hope. Because he had encountered storms in this vicinity, Diaz reported to his royal master that he had named the cape " *Cabo Tormentosa.*" King John, however, willing to believe that this discovery marked an important advance on the long-sought route to the Spicery, rechristened the cape " *Bona Speranza,*" or Good Hope. (" Purchas his Pilgrimes," vol. ii, p. 17.)

King John was thoroughly imbued with the spirit of discovery, and firmly believed that the Portuguese would eventually find the sea route to India. He took the greatest care to represent to other nations the immense difficulties of the voyages, so far as they had been prosecuted, endeavoring to create the impression that they would have been impossible in ships other than those of the peculiar Portuguese construction. When one of his sea captains and two pilots attempted to desert in order to enter the service of the King of Spain, they were pursued and killed. (" History of Spain and Portugal," Harper & Co., iii, p. 233.)

So determined was King John to reach the Indies by sea that he neglected no means that would further his purpose. Becoming convinced that in India, or on the east coast of Africa, something might be learned in regard to a route around Africa, he sent trusted men to the East to seek such information. The first messenger failed because of his ignorance of Arabic. Having learned to be more careful in his selection, John sent Pedro Covilham and Alfonso de Payva, whose orders were to discover the country of Prester John, to trace the Venetian commerce in drugs and spices, and to gather information in regard to the possibility of reaching India by rounding the southern extremity of Africa. Covilham and Payva went to Alexandria, thence to Cairo, and by caravan to a port on the Red Sea, where they found opportunity to study the methods of the Moorish traders who plied between India and Egypt. At Aden the two separated, Covilham going to Calicut, on the Malabar coast, Payva starting for Abyssinia, the land of the far-famed Prester John. Covilham was the first Portuguese to sail the Indian Ocean. In India he saw the pepper and ginger plants growing, and was able to secure accurate information in regard to cinnamon and cloves. Returning to Egypt, Covilham learned that Payva had been murdered. He met a messenger from King John, and sent him back with the report that ships which sailed down the coast of Guinea might be sure of reaching the termination of the continent, " and that when they should arrive in the eastern sea, the best direction must be to inquire for Sofala and the Island of the Moon " (Madagascar). Covilham now went to Ormuz to study the trade there, and, having again forwarded reports to his master, went to Abyssinia to do the work which had been assigned to Payva. He made himself so useful to the monarch of Abyssinia that he was constrained to remain in his service during the rest of his life. It is believed, however, that Covilham continued to serve his native land by maintaining a correspondence as long as he lived. (" India in the Fifteenth Century," Hakluyt Society, pp. lxxxi–lxxxviii.) It seems only just to Covilham that his services should receive recognition as an important contribution toward the discovery of the Cape route, as the expedition of Vasco da Gama did not sail until after Covilham's reports had been received.

In the year 1495 Manuel " the Fortunate " came to the throne of Portugal. He continued his father's policy of endeavoring to reach India by sea. It is said that he was encouraged to do so by reading some old letters which he found in a chest of his father's. These letters were from a Venetian merchant who had executed important commissions for King John, and, having received favors from his royal patron, had consented to tell him something of Venetian commerce. He wrote " of India, its riches and trade, of the bringing of rich merchandise and aromatic spices to Alexandria, from which the Turk drew great profits, and from that place the merchandise came by the trading of merchants to Venice. This was the greatest trade there was in Venice." (Gaspar Correa, " Voyages of Vasco da Gama," Hakluyt Society, p. 16.)

After much deliberation the King selected Vasco da Gama as the captain-general of the fleet which was being fitted out. Da Gama gave the most careful attention to the details of provisions and equipment. He encouraged the sailors, who had been hired for the voyage some months in advance, to learn trades, such as carpentry, rope-making, and blacksmithing; promising additional wages to each man who thus increased his usefulness.

It is said that the intended voyage was very unpopular among the people of Portugal, who believed that no adequate compensation could be derived from so wild and hazardous a venture. Camoëns, Portugal's most illustrious poet, who penned the " Lusiad," an epic of the discovery of India, has personified the populace in a venerable man who appears on the shores among those who watch the departing vessels. The aged one pronounces a curse upon all those who seek the vanities of honor and dominion, especially upon those who leave their native land to seek empire upon unknown shores. His malediction is, in part, as follows:

What new dread horror dost thou now prepare!
High sounds thy voice of India's pearly shore,
Of endless triumphs and of countless store;
Of other worlds so towered thy swelling boast,
Thy golden dreams when Paradise was lost,
When thy big promise steeped the world in gore,
And simple innocence was known no more.

* * * * * * * * *

> Cursed be the man who first on floating wood
> Forsook the beach and braved the treacherous flood!
> Oh! never, never may the sacred Nine,
> To crown his brows the hallowed wreath entwine;
> Nor may his name to future times resound;
> Oblivion be his meed, and hell profound!
>
> —CAMOËNS, *Lusiad,* Mickle, trans., Book IV.

The little fleet of three vessels sailed from Lisbon, June 20, 1497, rounding the stormy cape on November 20. Shortly afterward a beautiful river was entered, and here a pause was made for refreshment and for refitting the vessels. One of the ships had been damaged, and this was burned, all of the metal parts being saved for possible use in repairing the others. The other vessels were beached and scraped.

Reaching Mozambique, da Gama endeavored to obtain information in regard to the route to India. Upon the Sheik's inquiry as to what merchandise he sought, da Gama showed him pepper, cinnamon, and ginger. The Sheik promised to provide pilots who would guide him to a country where his ships could be filled with these spices. However, the Sheik proved to be treacherous, and da Gama found it necessary to look further for the pilot he needed. He was more fortunate in his dealings with the King of Melinda, on the Zanzibar coast. The Melindans showed every kindness to the voyagers. Pilots were promised, but the Portuguese were advised to wait for the season of favorable winds, and this was done. Camoëns tells us that the King and his court were fully informed of the glories of Portugal and the martial exploits of her warriors by a long historical recital by da Gama. As Camoëns gives us da Gama's recital, the deeds of the sons of Lusitania lost nothing in the telling. Doubtless the Melindans were duly impressed. (Camoëns, "Lusiad," Books III and IV.)

The time of favorable winds having arrived, the hospitable King provided the Portuguese with two of his best pilots, as well as with provisions for the voyage. Leaving Melinda in July, 1498, they sailed with a fair wind for twenty days, at the end of which time they sighted a mountain on the coast of India. Running along the coast, they reached the harbor of Calicut (not to be confused with Calcutta). Here they were given a friendly reception, and assured that they would be allowed to purchase pepper and other spices. All would have gone well had it not been for the Moors. These shrewd Moslem merchants, who had been established here for many years, and who controlled the traffic between India and the Red Sea, very soon saw that their trade was ruined if the Portuguese were allowed to establish commercial relations in Calicut and other cities of India. The Moors guessed that if, on this initial voyage, the Portuguese were able to secure cargoes of spices, they would soon monopolize the business. So by threats and bribes they sought to influence the court officials to incite the King to hostility towards the Europeans.

However, after long negotiations, the privilege of trade was granted, and a temporary factory or trading post was set up in a house on the shore. The goods sent ashore for barter consisted of coral, vermilion, quicksilver, copper, and amber, as well as Portuguese gold and silver coins. A table covered with green cloth, and a wooden balance with weights were also landed. On the first day quantities of pepper were brought from the King's storehouse, and the entire day was spent by the Portuguese factors in weighing this pungent condiment, the high price of which in Europe had been instrumental in bringing about the Portuguese discovery. In the evening, having reckoned the value of the pepper weighed, the factor told the King's officials to select from the stock whatever they wished, to the value of the pepper, the price of the Portuguese merchandise having previously been agreed upon. The goods selected were cut coral, copper, and quicksilver. Such was the first day's trade between Europeans and the natives of the Indies, such the beginning of a traffic that was to bring to the eastern ocean the fleets of several nations, and to result in centuries of strife and bloodshed.

A curious feature of these first days of trade at Calicut was that each party to the transaction believed that he was outwitting the other. So trifling was the native price for pepper compared with that to which the Portuguese had been accustomed at home, so precious did the European commodities appear to the natives, that each party believed itself to be driving a keen bargain. Da Gama had instructed his factors to be liberal in their dealings with the natives, to accept all spices offered without question in regard to quality, and to give good weight on the wares given in exchange. The King's officers soon learned that the Portuguese would not protest, even if the spices offered were of inferior quality, and seem to have worked off a lot of second-grade pepper and ginger. The wily da Gama cared little for this; he knew that if he could return to Lisbon with cargoes of pepper, thereby demonstrating that his ships had reached the long-desired land of spices, the next expedition would be powerful enough to protect Portuguese interests.

For a number of days the weighing went on, the Portuguese purchasing not only pepper, but cinnamon and ginger. The Moors did not cease their efforts to cause trouble for da Gama, and at last he was treacherously arrested. The Portuguese accounts differ in regard to the incidents which followed, and the exact truth is not obtainable. However, da Gama was liberated after a time, and sailed from Calicut, secretly vowing vengeance on King and Moors. During this entire voyage he was very careful to avoid any serious clash with natives, as such an incident might easily have proved disastrous to his weak forces. His conduct on futures voyages, when he had the backing of strong military forces, was very different.

The King of the neighboring State of Cananor had heard of the visit of the Portuguese to Calicut. When the Portuguese approached his harbor he sent messengers in boats to beg them to trade with him, promising all the spices they needed. An agreement was reached, and the King sent out in boats sufficient spices to complete the lading of the vessels. In paying for these, the Captain-general was very liberal, sending coral, vermilion, quicksilver, and copper basins amounting to fully twice the value of the spices received, as prices were in that market. The King now visited the vessels, and presents were exchanged, after which da Gama was ready for the homeward voyage. A stop was made at Melinda. Here again was an interchange of presents. The King sent to the Queen of Portugal a large piece of ambergris. To King Manuel he sent a letter of friendship written on a leaf of gold.

As the vessels ran down the east coast of Africa on the return voyage, da Gama gave orders to his pilots to write in fullest detail the directions necessary for future navigations of this coast. The cape was rounded without misfortune. When the sailors found that they were again headed northward they embraced each other with joy and knelt to offer praise to Heaven. Terceira, in the Azores, was reached at the end of August, 1499, and the vessels anchored here for a few days. As soon as da Gama's vessels entered this harbor a number of boats raced for Portugal to carry to the King the glad news of da Gama's return. The ships were by this time leaking so badly that it was difficult to keep them afloat, but the Captain-general refused to transfer his cargoes to other vessels. He reached Lisbon about September 18, 1499 (conflict in dates), and was greeted by city and court with demonstrations of joy.

Vasco da Gama was richly rewarded for the service which he had rendered to king and country. The title of "Dom" was conferred upon him, and he was presented with 20,000 cruzadoes in gold, and, further, "the perpetual right of 200 cruzadoes which he might put out every year of his own money on cinnamon in Cananor . . . these purchases he might stow on any ship without freight or duties and bring them free of charge to his own house . . . this the King granted him as long as India lasted, for an inheritance to his principal heir." Various favors and recompenses were granted to the captains and officers, one and all. It was ordered that to each mariner of the fleet "should be given ten pounds of each spice for their wives to divide with their gossips and friends. . . . Great recompenses were given to one and all, because at this time the quintal (100 pounds) of pepper was worth in Lisbon 80 cruzadoes, that of cinnamon 180, of cloves 200, of ginger 120, mace 300, nutmeg 100. All remained rich and satisfied." Well might the King be liberal in his gifts, for it was found that for every cruzado invested in the voyage a return of 60 was yielded. The King went with Dom Vasco to the convent of Our Lady of Guadalupe to offer a rich gold necklace, which had been sent by the King of Cananor, together with some rich stuffs, a bag of each spice, and a piece of benzoin, the latter probably to be used as incense. (Although many authorities have been consulted which describe in more or less detail Vasco da Gama's first voyage to the Indies, most of the story as given above is taken from "Voyages of Vasco da Gama," translated from the Portuguese by E. J. Stanley, H. S. The quotations are from this authority.)

Doubtless the motives which had influenced Prince Henry the Navigator and the various Portuguese kings of the fifteenth century to send out exploring expeditions were very complex. We believe that a desire for glory and renown and an inspiration to extend the dominion of the throne of Portugal influenced the princes and their captains. That there was also a desire to extend Christianity to heathen lands was doubtless true, since priests were sent to Indian very soon after the discovery of the way thither. However, it seems certain that the dominating motive in moulding the Portuguese policy was the desire to gain the trade in spices and other Oriental wares. Vasco da Gama had shown the Sheik of Mozambique pepper, cinnamon, and ginger, and asked to be directed to the land where these were found. Once on the Malabar coast, he had spared no pains to secure cargoes of these spices, and, having obtained them, lost no time in making his way home, assured of a welcome. Stanley, the translator of Gaspar Correa's work, which has formed the basis of our story of da Gama, considers that Correa has made it very plain that the methods used by da Gama and his captains evidenced a greed of commercial gain. (Correa, "Voyages of Vasco da Gama," H. S., p. xxxix.) However that may be, the return of 60 to 1 on the investment in the first voyage was sufficient to cause Manuel to resolve to send without unnecessary delay such a fleet as could carry great cargoes sufficient to bring him untold wealth. (Correa, "Voyages of Vasco da Gama," H. S., p. 275.)

Pedro Alvarez Cabral was the commander of a fleet of 13 ships which sailed from Lisbon, March 8, 1500. Being blown far to the westward of the African coast by a great storm, Cabral sighted land on April 23; this land he named Brazil. One of the vessels hastened back to Lisbon with the tidings of this discovery, while the others went on their way. The discovery of Brazil had an important bearing on the Indian voyages, for Bahia, on the Brazilian coast, was frequently made a stopping place to secure water, fruit, and other refreshments. Only six ships of Cabral's fleet succeeded in rounding the Cape. Reaching Calicut, Cabral, like his predecessor, had trouble with the Moors and with the King. Becoming embroiled with the Moorish merchants, he destroyed some of their vessels after having loaded the cargoes into his own ships. Some of his sailors having met death ashore, Cabral visited a terrible vengeance upon the city. The unfortunate King learned that he had to deal with a race who were not only able to defend themselves, but to wreak revenge upon those who dared to deny them what they demanded. This was only a foretaste of the dealings between the Portuguese and the eastern peoples. Cabral established friendly relations with a number of potentates on the Malabar coast, and settled factories. He returned with very heavy and valuable cargoes of spices. (History of Spain and Portugal, Harpers, iii, p. 244.)

A glance at the story of Vasco da Gama's second voyage will give us further insight into the character of that hero, as well as into the methods which the Portuguese were using to secure the monopoly of the spice trade. Da Gama sailed from Lisbon in 1502 with 15 caravels (some accounts say 19 or 20). On this voyage, instead of following the east coast of Africa well up toward Cape Guardafui, and then crossing the Arabian Gulf to the Malabar coast, he left the continent while still opposite the Mozambique coast; and struck boldly across the Indian Ocean for his destination, thus greatly shortening the voyage. The Admiral detached a squadron under Sodre to explore the coast of Arabia. (" Purchas his Pilgrimes," x, p. 22.)

We find da Gama on this voyage sending the following message to the King of Baticola, one of the Indian potentates: " This is the fleet of the King of Portugal, my sovereign, who is the Lord of the sea, of all the world, and also of this coast, for which reason all of the rivers, and forts which have got shipping have to obey him and pay tribute . . . and this as a sign of obedience . . . neither trading in pepper or bringing Turks, nor going to the port of Calicut . . . for any of these three things; the ships which shall be found to have done them shall be burned with as many as be captured in them. Let the King send me an answer; if it be not a good one I will send and burn ships and town, and cause much harm to be done." (Correa, H. S., p. 311.) We learn from this declaration that already the Portuguese were claiming a monopoly of the pepper trade, that they were undertaking to dictate as to where and with whom the native states might trade, and that they had determined to ruin the commerce of such petty kingdoms as had not seen fit to submit to the demands of the intruders. Let us see whether da Gama was prepared to back his threats with actions.

On this same voyage he captured a richly-laden Moorish vessel *en route* from Mecca to Calicut. After the cargo had been transferred to his own vessels da Gama ordered that the captured vessel, with its crew and passengers, numbering about 700 souls, be burned. The Moors, among whom were wealthy merchants plead for their lives, and offered, if da Gama would but conduct them to Calicut, to fill all of his vessels with pepper as a ransom. Da Gama refused the offer, contrary to the advice of his own officers, and the ship was fired. The desperate Moors did not perish, however, until after they had succeeded in boarding one of the Portuguese vessels and inflicting some loss of life upon its company. (Correa, p. 313.) Greater atrocities were to follow before the fleet left India. Certain vessels from Coromandel, on the east coast of India, bound for Calicut, fell into the hands of the Portuguese and were plundered. The unfortunate mariners were bound, their hands, ears, and noses lopped off, their teeth knocked down their throats, and the whole bleeding, writhing mass loaded into one of the captured vessels, which was fired. The severed members of all of the victims were put into another ship and sent ashore as an object lesson to all who should dare to question Portuguese authority. (Correa, p. 331.) Where he found the natives submissive, the Admiral established factories or trading stations, and left agents with stocks of goods for barter. This was done at Cananor and at Cochin. The principal commodities offered by the Portuguese in trade continued to be coral, vermilion, quicksilver, brass, and copper, although they landed, also, caps, mirrors, and other trinkets. Pepper was the product purchased in greatest quantity; ginger and cinnamon, however, were taken in large amounts.

After a long period of retirement, the reason for which is not fully understood, Vasco da Gama made a third voyage to the Indies. In the meantime new honors had been conferred upon him. He was now Count of Vidigueria, and ranked as Admiral of the Indian Seas, as well as Viceroy of India. He arrived at Goa, now the seat of Portuguese power in India, September, 1524. He travelled and lived in regal splendor, was served by men bearing silver maces, maintained his major-domo and equerries. He was accompanied by a brilliant soldiery, officered by sons of noble families. He came endowed with the King's own power of justice and revenue over all the dominion beyond Cape Bona Speranza. Our narrator tells us that, despite his arrogance and love of pomp and display, da Gama was not corrupt, as were so many of the Portuguese officials of his own and later times, but still remained true to the interests of his master. He gave particular attention to the supervision of the royal revenues, and declared that it was his intention to make the King rich. However, his career as Viceroy was a short one; he died in Goa, December 24, 1524. (Correa, pp. 380–381.)

Stanley considers that Vasco da Gama is not to be ranked with Columbus and Magellan, both of whom were the originators of the projects which they prosecuted to success, and both of whom, in their voyages of discovery, commanded men not their own countrymen and who were not fully in sympathy with the leaders. Vasco da Gama was appointed by Manuel to take charge of an expedition which had been dreamed of and prepared for by Portuguese princes for many decades, and considerable information in regard to the route of which had already been gathered. He should, however, be given credit, thinks Stanley, for indomitable perseverance, wise judgment, and magnificent qualities of leadership. His record is stained by deeds which, even for the age in which he lived, were relentlessly cruel. His fame is due in great measure to the epic of his voyage as told by his gifted countrymen, Camoëns, in the *Lusiad*. (Introduction to "Voyages of Vasco da Gama," H. S., p. xx.) Perhaps it would not be fair to da Gama for us to accept in full Stanley's estimate of the ability of that daring man. Although on his famous voyage da Gama commanded men of his own race, they were far from loyal through all of the vicissitudes of the voyage. Indeed, it became necessary for him to put his pilots in irons to prevent them from inciting the crews to open mutiny. Da Gama did what a man then living, a navigator of no mean ability, namely, Bartholomew Diaz, who first rounded the Cape, had declared to be impossible. His route was not always that of a coasting voyage, as has sometimes been said; at certain stages it was necessary for him to give the continent a wide berth to avoid dangerous shore currents. On his second voyage, as we have seen, he found his way for thousands of miles across the trackless Indian Ocean from Mozambique to India. When all has been said that may be to detract from his fame, Vasco da Gama is worthy to live in history as a great discoverer.

Portuguese expeditions to the Indies now followed one another in rapid succession. Every year or oftener, fleets of from ten to twenty vessels left Lisbon harbor on the long voyage, carrying, in addition to their crews, strong bodies of soldiery. From da Gama's first voyage in 1497 until the year 1521 there were despatched 33 fleets, totalling 220 ships. From that time on throughout the entire century, probably hardly a year went by without a powerful expedition leaving for the East. (Introduction to "Voyages of Sir Henry Middleton," H. S., p. vi.) The policy followed during the first few years of the century was to establish factories as rapidly as possible on the African and Malabar coasts, by peaceful means if possible, but using force if the natives proved contrary; further, to utterly destroy all efforts of the Moors to carry on the commerce which had been so flourishing before the Portuguese came. Little effort was made at this period or later to acquire territorial dominion; the Portuguese had come to trade rather than to gain an empire. In this their policy was quite different from that of the Spaniards in the New World. (Introduction to "Commentaries of Alfonso d'Albuquerque," H. S. p. xv.)

Francisco de Almeida, the First Viceroy of India, sailed from Lisbon in 1505 with a fleet of 22 vessels. He not only promoted trade, but garrisoned forts at Cananor and several other places in India. Probably the man who did most to firmly establish Portuguese power in the Indies was Alfonso de Albuquerque. Albuquerque combined the qualities of a diplomat with those of a military commander. He exercised splendid judgment in the selection of strategic points for fortifications which would enable the Portuguese to dominate the commerce of all southern Asia and neighboring islands.

One of the strongholds which Albuquerque secured for Portugal was Ormuz, situated on an island at the narrow entrance to the Persian Gulf, and therefore, if fortified, able to control the entrance and exit of vessels. For years an important trade route between the Indies and the Mediterranean had passed through the Persian Gulf, up the Euphrates to a point opposite Aleppo, thence by caravan to that city. Although, during the period of Venetian ascendency, this route was not as much used as that by the Red Sea to Alexandria, it still retained much of its importance. It will be recalled that Covilham had been sent to study the commerce of Ormuz before da Gama's first voyage. The value of Ormuz was further enhanced by the fact that it controlled the pearl fisheries of the Persian Gulf. Of the many available accounts of the commerce of Ormuz at the beginning of the sixteenth century, I quote from that of Duarte Barbosa, a keen and accurate observer. He says, in part: "In the mouth of the Sea and Strait of Persia is a small island in which is the city of Ormuz . . . a great centre of trade. They bring here all sorts of spices, precious stones, pepper, ginger, cinnamon, cloves, mace, nutmegs, long pepper, aloes-wood, sandal-wood, Brazil-wood, balsam, tamarinds, rice, cocoanuts, rubies and other stones, benzoin, porcelain, all kinds of cotton goods. . . . They also bring to Ormuz (for India) quicksilver, vermilion, rosewater, brocades, silks, woollens, and camelots. From China and Cathay came by land, silk in skeins, rare metals, and rhubarb . . . from Baharem, seed pearls and pearls; from Arabia and Persia, horses, which they carry to India, as well as salt, dates, raisins, and sulphur." (Duarte Barbosa, "Coasts of East Africa and Malabar at Beginning of Sixteenth Century," translated by E. J. Stanley, H. S., p. 42.) From another source we get this picture of Ormuz: " . . . greate traffic for all that is staple of all India, Persia, Arabia, and Turkie . . . and commonly it is full of Persians, Armenians, Turks and all nations, as also Venetians, which be there to buy spices and precious stones; . . . out of Arabia various sortes of drugges for Poticaries, as Sanguis Draconis (Dragon's Blood), manna, Mirre, Frankincense and such like, and goodly horses . . . now to know the cause of so great traffique . . . twice every year commeth a great company of people overland called Caravanes, which come from Tripolis, on the coast of the Mediterranean Sea . . . every year twice, in months of Aprill and September. A Captain and certain hundredths of Janissarries (Janizaries) convey the caravan to town of Bassora (junction of Tigris and Euphrates), from whence by water to Ormuz." (Jan Huyghen van Linschoten, H. S., pp. 47–48.)

We can easily understand how the Portuguese might covet a city of such commercial importance. Barbosa tells us that a Portuguese fleet under the command of Albuquerque appeared before Ormuz, that there was a failure to come to an understanding in regard to trade, and that a great battle ensued, in which the Moors were routed. The latter then agreed to allow the Portuguese to build a fort, but, as they repented of this, further combat followed, and the city and island became tributary to Portugal. Ormuz continued to be one of the strongholds of Portugal until captured by the English and Persians in 1622.

Even more important to the future of the Portuguese in India was Albuquerque's conquest of Goa. This city was built on an island at the mouth of the river Mandona, on the Malabar coast. It was a dependency of the kingdom of Deccan. At this period it was a prosperous city and an emporium of trade. Albuquerque, in 1510, found an excuse for attacking the city in the fact that its ruler headed a conspiracy of Moorish merchants to build in Goa a fleet for the purpose of driving the Portuguese out of India. Albuquerque heard of the plan, assembled his forces, made an attack and utterly defeated the sea and land forces of his enemies. (Barbosa, H. S., pp. 75–76.)

Albuquerque found in Goa a flourishing commercial city possessed of a good harbor, in a position easily defensible, and centrally located. Quick to recognize these points of advantage, he determined to make Goa the capital of India. He fortified the island, and under him and succeeding viceroys the city rose to regal splendor and almost fabulous wealth. Although its glory has long since departed, it is one of the few footholds in Asia retained by the Portuguese through all the vicissitudes of the centuries. A glimpse of Goa in the height of its magnificence will be given later.

For a number of years after da Gama's first voyage, the Portuguese devoted all of their energy to establishing themselves on the African and Malabar coasts. However, their ambition, or rather their greed of financial gain, caused them to cast longing eyes on the Farther East. They learned that many of the products they were purchasing on the Malabar coast were coming to them at second and third hand. Pepper and ginger were produced in abundance on this coast, but cloves, nutmegs, mace, camphor, and benzoin came from far to the eastward. A bahar (5 quintals, or 500 pounds) of cloves, which was worth 2 ducats in the Moluccas, was worth 14 ducats by the time it reached Malacca, and 500 in Calicut where the Portuguese received it. (At this period it was worth 1680 ducats in London.) (Tschirch, "Handbuch der Pharmacognosie," p. 730.) Further, the Portuguese learned that the Moors were carrying on a trade between the islands and the Red Sea ports. Here, then, was a portion of the commerce of the Indies, which did not pass through Portuguese hands, from which they were deriving no revenue. This could not be tolerated.

As early as 1505 Almeida reached the island of Ceylon, where much of the cinnamon was and is produced. In 1509 an expedition reached the port of Malacca, on the straits of the same name. Malacca was at that time a thriving commercial city of 150,000 souls, a market much resorted to by merchants from Arabia, India, China, and the great archipelago to the southeast. A foothold in Malacca was obtained only after severe fighting. Singapore, down the Straits, at the tip of the Malay Peninsula, was reached shortly after Malacca. (Tschirch, p. 730.) In 1511 three ships sent out by Albuquerque, under d'Abreo, coasting along the south of the great islands of Sumatra and Java, reached the Banda Islands and Amboyna, the sources of the world's supply of nutmegs and mace. In 1512 a ship of this same squadron, commanded by Senano, leaving Banda, succeeded, after many misfortunes, in reaching the true Moluccas, a group consistting of Ternate, Tydore, and several other very small islands, frequently known as the "Clove Islands." These are supposed to have been the first Europeans to tread these tiny islands, the desire for control of which was to cause endless strife between Portuguese, Spanish, Dutch, and English, as well as abject misery to the islanders themselves. Marco Polo and some later travellers had gone no farther east than Java. (Tschirch, p. 731; also Purchas, ii, p. 83.)

In June, 1513, we find Manuel of Portugal writing to the Pope of the successes of his commanders in India. He informs the Pope that Alfonso d'Albuquerque sailed to Malacca, between Sinus Magnus and the Ganges estuary, and found it a town of immense size, abounding in spices, pearls, gold, and precious stones. The place was captured and a fortress built. The King of Ansiam (Siam) sent a golden cup with a carbuncle and a sword as a pledge of amity. Returning to India, d'Albuquerque found Goa, formerly won with great bloodshed, attacked by Moors, whom he defeated. (Calendar of State Papers, Colonial, East Indies, 1513–1616, pp. 1–2.) It is significant to note that Manuel mentions spices first in the list of products of this wonderful city of the East.

In the course of a few years the Portuguese tightened their grip upon the commerce of the Indies, until from the Cape of Good Hope to the Moluccas they held it almost entirely in their control. The Moors continued to do a little surreptitious independent trading, but it was small in volume. The Spaniards early began to make trouble in the Moluccas, of which we shall learn later. But during the sixteenth century Portugal may be said to have held a monopoly on the trade in the spices, drugs, and dyestuffs of the East.

She had soon obtained a foothold in China. During the ages past the products of China had reached Europe by several indirect routes. In part they were carried across the entire breadth of Asia by caravans to the Caspian or Mediterranean; in part, as we have seen, by caravan to Ormuz and thence up the Euphrates and so to the Mediterranean ports. Chinese junks had also traded to Malacca, where their goods passed into the hands of the Moors, who carried them to Ormuz, Aden, or Suez. All of these routes were exceedingly expensive, which explains the fact that during the Middle Ages rhubarb was one of the most costly drugs used in Europe.

"But from yeere 1554 Lionell of Sosa . . . made a covenant with the Chinese that they would pay their duties and that they should suffer them to doe their businesses in their ports. And since that time they doe them in Canton, which is the first part of China, and thither the Chinaes do resort with their silks and Muske which are the principal goods the Portuguese buy in China." (Purchas, xi, p. 541.)

The foregoing, taken from the journal of Gaspar da Cruz, one of the early

Portuguese missionaries to China, refers to the colony at Macao. From another source we learn that " Machan, or Makau, is inhabited by Portuguese who traffic with the men of Canton . . . but the Portuguese may not go thither . . . they suffer the Portuguese to choose a factor among themselves who in all their names is licensed to goe to Canton, there to buy what they desire, but at night he must lye in the suburbs without the towne." (Linschoten, H. S., p. 145.)

A travel story which serves not only to throw light upon the methods of the Portuguese, but also to show how large a part of the merchandise exported from those countries consisted of drugs and spices, is that of M. Cæsar Fredericke, a Venetian merchant, who travelled in the Far East from 1563 to 1581. The story is very lengthy, and only brief extracts will be given. Fredericke went by caravan from Aleppo to the Euphrates, down that stream by boat to Bassora, where he reshipped for Ormuz. Since we have already seen something of the commerce of Ormuz, we will pass on to Goa. Among the wares received in this city for distribution to various ports of the Indies and for shipment to Europe, Fredericke mentions the following: " All sorts of spices, silks of China, Sandols (sandalwood), elephant's teeth (ivory), velvets of Vercini, . . . great quantity of Indico (indigo), dried ginger and conserved myrabolans, . . . great store of sugar, great quantity of cotton, abundance of opium, assafetida, other sorts of drugges, and precious stones."

He mentions the city of Chaul, on the Malabar coast, where he saw many cocoanuts. He gives a very detailed description of the numerous uses made by the natives of this nut and of the other products of the tree which bears it. " There goeth forth out of Chaul for Malacca, for the Indies, for Macao, for Portugal, for the coasts of Melinda, for Ormuz, indico, opium, cotton, silke, fetida, yron, corne, and other merchandise." Among the products of the kingdom of Cananor are enumerated: " cardamomuma, pepper, ginger, honie, great nuts (cocoanuts), areka." Of the areka he says, " which fruit they eat in all these parts of the Indies . . . with the leafe of an herbe which they call Bettell (Piper Betel), family *Piperaceæ,* like unto our Ivie leafe . . . they eat it made in plaisters with the lime made of Oister shells . . . and it is used daily . . . when this people eate and chawe this in their mouths it maketh their spittle to be red like unto blood, and they say it maketh a man to have a very good stomacke and a sweet breathe, but in my judgment they eat it rather to fulfill their filthie lustes and of a knaverie, for this Herbe is moyst and hote." The above is one of many descriptions of the betel-chewing habit found in the journals of the travellers of this and earlier periods. All the writers describe the habit much as Cæsar Fredericke has done.

Speaking of the pepper trade at Cochin, our traveller says that the officers of the King of Portugal made a contract for the price of pepper, " and by reason of that agreement, the price can neither rise nor fall, which is a very low and base price, and for this cause the villains bring it to the Portugalls green and full of filth. The Moores of Mecca, that give a better price, have it cleane and drie and better conditioned. All the spices and drugs that are brought to Mecca are *stollen from thence* as *contraband.*" (Italics mine.)

Fredericke says that in the Island of Zeilan (Ceylon) there is much fine " Sinamon " (cinnamon) as well as pepper. " Nuttes " (cocoanuts), and " Arochoe " (areca), also " Christall Cat's eyes." He describes the gathering of cinnamon, which he took great pains to go to see, in spite of the fact that the Portuguese were at that time in arms against the islanders. " They cut the barke round about in length from knot to knot, or from joint to joint, above and below, and then easilie with their hands they take it away, laying it in the sun to drie. . . . The next yeare it will have a new barke, and that which is gathered every yeare is the best Sinamome. . . ."

In Sumatra, we are told, are found great store of pepper, ginger, and "Benjamin" (benzoin). He tells us how the Portuguese used the strategic position of Malacca to aid them in controlling the commerce of Farther India, and to derive a revenue therefrom: "All the ships that sail in these seas . . . are bound to touch at Malacca to paie their custome . . . and if by night they escape away, then they fall into a greater danger after, for if they come into the Indies and have not the seal of Malacca, they pay double custom. The sailing from Malacca toward the east is not common for all men, as to China and Japan, but only for the King of Portugal with leave granted."

Fredericke tells us that each year one galleon of the King's leaves for the Moluccas (Ternate and Tydore) to lade cloves, and one for Banda to lade nutmegs and mace. The trade of these three was a monopoly of the Portuguese crown. The principal merchandise leaving China he states to be "gold in plates, silk, damask, taffeta, quantities of muske, quicksilver, cinaper (cinnabar), camfora, infinite variety of porcellane ware, and roots of China (Smilax China). The Rhubarbe commeth from thence over lande by way of Persia, because that every yeare there goeth a great Caravan from Persia to China."

The Portuguese commander of Malacca sent every year a small ship to Timor (seven or eight hundred miles east of Java) to load "white Sandols," the supply of the best quality of this much esteemed aromatic wood being found in that island. He also sent a vessel to "Canchin China" to get "wood of Aloes" (the wood of *Aquilana agallocha,* formerly much used as incense. Not to be confused with the drug aloes.) At this point in his narration, Fredericke extols at length the "excellent gentle vertue" of the Nypa or Nypher wine (a beverage made by fermenting the juice of the Nyper palm), which he says will cure even if "one were rotten with French pockes."

As the products of Pegu (in lower Burmah) are given gold, silver, precious stones, benjamin, long pepper, lead, "lacca" (lac or shellac), rice, wine, and sugar. Our author tells us of a speculation in opium which he made. Knowing that opium was very dear in Pegu, he went to Cambaya, where he invested 2100 ducats (every ducat 4 pounds 2 shillings, about one dollar) in opium, thinking to make a handsome profit by selling at Pegu. However, just one day before he reached Pegu, a ship carrying a great amount of opium was driven into that harbor by a storm. When Fredericke arrived he found that "opium was now at a base price . . . so that I was glad to stay two years in Pegu unless I would have given away my commodite."

Cæsar Fredericke also undertakes to enumerate the principal products of India and adjacent countries, with information as to where and how each is obtained. A few of his statements may be of interest.

"The cloves come from the Moluccas, which are two islands (Ternate and Tydore) not very great, and the tree that they grow on is like to our Laurell tree."

"The nutmegs and maces, which grow together, are brought from Banda . . . the tree is like to our walnut tree." (Nutmegs and mace are both obtained from *Myristica fragrans,* the former being the kernel of the seed, the latter the arillode partly enclosing the seed.)

"All of the good white Sandol is brought from the island of Timor. Camfora, being compound, cometh all from China, and all of that which groweth in canes from Borneo, and I think that this Camfora (the latter kind) cometh not into these parts, for that in India they consume great store, and that it is deare." The author here distinguishes between camphor (from *Cinnamomum camphora*) and Borneo camphor (from *Dryobalanops aromatica*). From references to camphor in early records it is frequently difficult to determine which kind is referred to. Garcia da Orta, whose work, "Colloquios dos simples e drogas he cousa medicinais da India," was published in Goa in 1563, was probably the first to clearly differentiate the two camphors. (Clusius, "Aromatum Medicamentorum Simplicium Historis," Antwerp, 1613, pp. 36–39.) Borneo camphor was much used in India by the wealthy in connection with the betel-chewing habit. It was used also in celebrating the funeral obsequies of Indian princes. (Flückiger and Hanbury, "Pharmacographia," pp. 512–517.)

Fredericke gives an entirely erroneous account of the manner of obtaining musk, in brief his explanation being that it was made by pounding an animal with stones and putting the dried mixture of flesh and blood into sacks made of the skin of the animal. This explanation, or a very similar one, is found in several of the old records. Musk really consists of the preputial follicles of the musk deer (*Moschus moschiferus*), a native of Tartary and Siberia. Musk was held in even higher estimation during the Middle Ages than at present as a perfume. ("The Voyage and Travel of M. Cæsar Fredericke," Hakluyt's Voyages, v, pp. 365–449.)

A picture of the viceregal city of Goa, as it was seen at the pinnacle of its glory near the close of the sixteenth century, will give us a conception of the immense wealth which accrued to the Portuguese from their traffic in the products of the Indies. We may have called to our attention some of the factors which were working to destroy the proud structure which the Portuguese had reared.

Jan Huyghen van Linschoten's description of Goa as he saw it during his six years' residence (1583–1589) is one of the best that has come down to us. From it we learn that Goa was the official residence, not only of the Viceroy, but of the King's counsel and the Archbishop of the Indies. The Viceroy held office for three years, and seems to have found little time to devote to the king's business, since the first year was consumed in learning the "customs and manners" of his position, the second in industriously accumulating treasure for himself, and the third year in getting his accounts into order so that he would not be surprised by the new incumbent. The Portuguese of Goa, no matter how humble their station had been at home, were all gentlemen, and were served by slaves, who were very plenty and cheap. Many Portuguese men married native women, the children of such unions being called mesticos. He writes of the King's Hospital located at Goa, and says that of the 500 patients who entered yearly few came out alive.

Linschoten mentions most of the countries of southern Asia as represented among the merchants who gathered at Goa. A fair or market was held every morning between the hours of seven and nine. Among the principal commodities offered for sale were "Arabian horses and all kinds of dried drugs, sweet gummes fine and costly." Many slaves, both men and women, were also offered for sale in this market.

Most of the Portuguese ships for India went directly to Goa and there unloaded. Linschoten informs us, however, that they came out with very light cargoes, most of the spices and other commodities purchased being paid for at this period in coin. One great ship yearly went directly to Malacca, not calling in India proper unless in distress for water. Each ship was manned by about

500 men, and of these, as many as thirty or more commonly died on the outward voyage. (Jan Huyghen Linschoten, H. S., vols. i and ii.)

The narrative of Pyrard de Laval was written about 1618. This observer confirms many of Linschoten's statements, and gives some additional matter of interest. He goes into detail in regard to the magnificence of the establishment maintained by the Viceroy. This dignitary, he says, never went abroad into the city without having his intention of doing so proclaimed on the previous day, in order that all nobles and officials might assemble on horseback to honor his progress. De Laval places the Viceroy's annual salary at 30,000 cruzadoes, but states this amount was only a trifle compared with the vast sums amassed by means of gifts, bribes, and sale of privileges.

The Church enjoyed great prosperity in this golden era of the history of Goa. The city boasted a cathedral of superb architecture, besides numberless churches and the houses of many religious orders. The Inquisition also was firmly intrenched. De Laval's estimate of the royal hospital is quite different from that of Linschoten. He considers it one of the finest in the world in every respect. He was himself a patient in it, and speaks in terms of highest praise of the treatment and care. Possibly the management may have changed since Linschoten's day. The Jesuits were in charge at the time of which de Laval writes, and he considers them remarkably efficient. He says that the most common ailments were fevers, dysenteries, and venereal diseases. When the carracks arrived, great numbers of the crews, ill with scurvy and afflicted with ulcers, were removed to the hospital. (Pyrard de Laval, H. S., vol. ii, chap. i–viii.)

Tavernier wrote of conditions as they were about 1660, by which time the Dutch and English had encroached terribly upon the Portuguese commerce, with a consequent decline in the prosperity and magnificence of Goa. Tavernier tells us that in the good old days of Portuguese monopoly two or three ventures on voyages to the Moluccas or Japan, with a return of five to ten on the investment, were sufficient to make a man wealthy. Now, however, the Dutch had robbed them of so much trade that many of the Portuguese in Goa were impoverished. Very scornful are Tavernier's references to the " Hidalgoes of the Cape of Good Hope," the Portuguese of mean birth who prefixed the title of " Dom " to their names on rounding the Cape.

Tavernier describes the five governments into which Portuguese India was divided. The government of Mozambique, which included, apparently, all of the Portuguese forts and factories on the east coast of Africa, had been a rich sinecure in the former days. Our writer mentions one governor of this coast who after three years' tenure of office returned with ambergris worth 20,000 e'cus (450,000 to 660,000 dollars), besides gold and ivory. The government of Malacca was important because, as we have seen, all vessels returning from the East to Goa had to show the receipt of the Malacca customs house. The government of Ormuz had (by Tavernier's time Ormuz had been lost to the Portuguese) collected revenues on all of the commerce of the Persian Gulf, as well as on the pearl fisheries. The other governments were those of Ceylon and Muscat. The five governors were appointed by the Viceroy, and Tavernier considers that few monarchs have the distribution of such rich patronage as did the Viceroy of the Indies. Tavernier describes at length the many tropical fruits to be had in Goa, and adds: " Certainly a good pippin is worth more than all of these." May it not be supposed that in the midst of the luxuries of Goa the heart of the traveller yearned for *" La belle France "?* (Jean Baptiste Tavernier, " Travels in India," translated by V. Ball, i, chap. xiii.)

(To be continued.)

SCIENTIFIC SECTION

DISCOVERY OF THE ALKALOIDAL AFFINITIES OF HYDROUS ALUMINUM SILICATE.*

BY JOHN URI LLOYD, PHAR.M.

In the discursive paper following, which has, of necessity, been written in the first person, I have attempted to answer many questions that have been continuously asked of me during the past two years. I have also aimed to record many incidents, seemingly irrelevant, but which seem to me of sufficient interest to be authoritatively established. The usual exasperating scarcity of authoritative records in the direction of the early history of long-established drugs and remedial agents, leads me to feel that not alone in the present, but in the future, some one may desire to obtain the details embraced in the following narrative account.

History.—In the winter of 1910, calling to my experimental laboratory Mr. Wm. J. Miller, foreman of the technical laboratory that takes my special care, I said:

"Make a mixture of five parts berberine sulphate, with ninety-five parts fullers' earth. Bring it to a putty-like condition with water, working it well in a Wedgwood mortar to a complete and thorough admixture, then dry the product, powder it, and bring me a sample."

Within a reasonable time, a powder having the bright yellow color of berberine was brought to my desk. It was practically odorless, and seemed to be an intimately incorporated mixture of the two substances. Placing some of it upon my tongue, I found it tasteless! Sending for Mr. Miller, I asked:

"Are you sure that this mixture is as I directed, sulphate of berberine and fullers' earth only?"

"Exactly as directed," he replied.

Taking a small amount of the mixture, I digested it with diluted sulphuric acid, and filtered it. The filtrate was colorless, and gave no alkaloidal reaction. The residue on the filter paper retained its full berberine yellow color, but was tasteless.

"Send for a sample of the berberine sulphate used in the mixture." It came, and I found it to be true to name.

"Send for a sample of the fullers' earth used." It also came, and then I took the subject in hand.[1]

I made a mixture of berberine sulphate and fullers' earth, in the proportions aforenamed, added the same to distilled water, agitated the mixture well, and filtered. Behold! the filtrate passed colorless and devoid of alkaloid. I placed some of the residue upon the filter paper, on my tongue. It was tasteless. This mixture likewise, when digested with diluted acid and filtered, gave no evidence of an alkaloid being present.

Next I took, successively, other alkaloidal salts, such as those of morphine, quinine, cocaine, etc., submitted them to the same manipulation, and found that *all alkaloids experimented with* produced insoluble compounds, and that all (brucine excepted) were practically tasteless. I also discovered that the reaction was nearly instantaneous.

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* Read before Scientific Section, A. Ph. A., San Francisco Meeting, 1916.

[1] Readers of this communication may recall the experiment made in 1885 by Professor Thomas H. Norton, who, at my suggestion, studied the combinations that could be made between hydrastine and calcium. These, however, were altogether different from the compounds now under discussion.

Search of Literature.—I now turned to literature on the subject of alkaloidal reagents, for I had no recollection of this material being applied to alkaloidal manipulation. The shelves of the Lloyd Library gave me no references. Nor could any authorities I consulted give me any information in this direction. I accepted, therefore, that this phase of the problem was new.

Search for the Active Constituent.—I next attempted to establish the constituent of fullers' earth that produced this phenomenon.[2] Naturally, I thought of the possible influence of organic contaminations. To establish this point, I digested fullers' earth with nitric acid, and afterwards washed the residue with water. It carried the full alkaloidal qualities of the original material, even when the nitric acid was heated in contact with the fullers' earth. Other methods and agents (such as sulphuric acid), that would have destroyed any organic structures, gave like results.

I next removed all possible amounts of iron, by the oxidizing action of nitro-hydrochloric acid, and subsequent washings with diluted hydrochloric acid. The residue retained its alkaloidal affinities. Digestion with dilute acids to the total removal of calcium and magnesium carbonates and salts, left the product active.

Next, a portion of the fullers' earth was heated in a crucible, until all the water of combination was expelled. The brick-dust red residue had no alkaloidal affinities whatever! The same paralysis of alkaloidal affinity occurred with calcined specimens free from iron and organic contaminations. All these observations were subsequently confirmed in a short paper[3] by Dr. Sigmund Waldbott, of the Ohio Mechanics' Institute, Cincinnati, Ohio. Heating the material to about 130° did not destroy its peculiar activity, but red heat expelled an additional quantity of water, rendering the reagent inert. I therefore accepted that the alkaloidal affinities did not depend upon either organic structures, iron compounds, adhering calcium or magnesium salts, or water-free aluminum silicate. The reaction was, unquestionably, a function of *hydrous* aluminum silicate.

Physical Condition of the Reagent.—The *physical* form of the reagent was next investigated. It was found that clay free from the "soapy" or "sticky" qualities, as commonly expressed, was likely to run very low in alkaloidal attraction. On the other hand, the sticky, blue clay of the hills of our neighborhood was but slightly active, and this rule was therefore not inflexible. Dr. Waldbott (previously quoted) states as follows:

> The thought suggested itself that water-deposited clay might show the same action; indeed it was found by the writer last summer, that the fine blue clay so abundant in the hills of Cincinnati, after treatment with hydrochloric acid, had the same effect upon alkaloidal salts, rather faintly, as may be expected, yet very distinctly.

Thirty grammes of dry fullers' earth, capable of taking up 3¾ grammes of quinine bisulphate, slowly stirred into 240 grammes of sulphuric acid, resulted in an immediate increase of temperature, due, unquestionably, to the abstraction of water from the hydrous aluminum silicate. The mixture was digested for an hour on a water-bath, cooled, and poured into a gallon of water. The subsided precipitate took up 2½ grammes of quinine bisulphate. This demonstrated that even a great excess of sulphuric acid did not, by abstraction of water, destroy the alkaloidal affinity of the earth.

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[2] Literature consulted gave me little information concerning the exact composition (physical included) of the material known as "fullers' earth." Subsequent experiences have taught me that this is readily explained by the fact that the term "fullers' earth" is a blanket name, covering a multitude of different earth substances, of widely different composition. See Table IV.

[3] Journal of the American Chemical Society, June, 1913.

Inasmuch as natural fullers' earths are inclined to a slight acid reaction,[4] I attempted to neutralize the acid by alkalies, in order to see if the product could thus be paralyzed. A portion of the reagent was digested for twenty-four hours with dilute ammonia water, then collected on a filter, dried and powdered. It proved to carry its full alkaloidal adhesiveness, thus showing that the neutralization of free acid, if any were in the reagent, did not destroy the alkaloidal attraction. Experimentation teaches me that hydrous aluminum silicate, natural, may be white, practically free from iron compounds and natural dirt, and of a slight alkaline reaction. Professor Virgil Coblentz, to whom such a specimen was submitted, makes the following report:

> Upon testing the reaction of your sample, I find it to be alkaline to phenolphthalein, iodeosine, Congo-red, and methyl orange.

Different samples of fullers' earth, foreign and domestic, were found to vary markedly in both structural composition and in alkaloidal affinities, and it was shown that these alkaloidal affinities were not dependent upon an exact chemical composition, or the acid qualities of the earth.

An attempt was next made to separate from fullers' earth, by chemical processes, the hydrously active agent, if the activity be from hydration alone, but with indifferent success. I had now accepted that the alkaloidal affinity depended upon the *physical* form, which in turn rested upon, and was closely connected with, the *hydrated* condition of the material. I had also determined to my satisfaction, at that date, that successive degrees of hydration made the aluminum silicate increasingly active, and I also became, somewhat reluctantly, tinctured with the thought that the alkaloidal affinity depended upon the *condition of the water of adhesion, or hydration* (*possibly both*), and was distinct from that of water of definite combination, or crystallization.

Artificial Colloids Not Active.—Thus I was led to attempt to make artificially hydrated aluminum silicate, silicic acid, as well as gelatinous alumina and silica. For this purpose I used such processes as are employed for the preparation of hydrous alumina by the reaction between sulphate of aluminum and sodium carbonate. These products, however, whether made by cold or hot water, carried but feeble alkaloidal affinities, although the cold water product was typically gelatinous. Likewise, compounds precipitated as gelatinous forms from sodium silicate, by acids, proved to be practically inert. Then I reluctantly returned to the original, impure, natural material (fullers' earth), accepting that it carried a peculiar colloidal structure, embracing alumina, silica and water, which, in its native form, possessed the qualities of an alkaloidal precipitant.

Standardizing the Reagent.—Turning to the original material, fullers' earth, I now attempted through physical processes to separate, in its greatest degree of purity, the substance, whatever it might be, that produced the alkaloidal reaction.[5]

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[4] Fullers' Earth, by Charles L. Parsons: "The shades of color of fullers' earth are fully as great as those of other kinds of clay. Most of the earths on the market are light brown, gray, buff, or cream color, and a few are almost white. All fullers' earths which have been found valuable for bleaching purposes show a distinct so-called acid reaction. If a sample is touched to neutral litmus paper the paper will turn red; if the clay is suspended in water and phenolphthalein is added, a quantity of alkali, which varies widely with different earths, can be added before the red color appears. This property is no indication of true acidity, for the earth contains no acid."

Admixture with much water established that a certain part of the fullers' earth quickly settled, whereas another part slowly separated from the water solution. Decanting the overlying water and again adding water established that, in the second washing, a longer time was required for the subsidence of this overlying, gelatinous float. Again decanting the water and adding fresh water was followed by a further retardation (suspension) of the overlying light precipitate, until finally it was discovered that a colloidal, overlying material formed, as a translucent mud or gelatinous float, over the part that quickly settled. This colloidal fluid could be decanted as a liquid, and then allowed, by long time, to settle, separating it, thus, quite free from the heavier body.[6] It was gelatinous and, when collected on a strainer and dried, it formed a tough, hard, colloidal stone that, on being powdered, was found to possess, as contrasted with the original earth, markedly *increased* alkaloidal affinities.

It may be stated that some of the natural forms of hydrous aluminum silicate, mixed with water and agitated occasionally for some days and then permitted to rest, resolve themselves into different structural layers that subside, strata-like, the topmost layer being surmounted by a milky liquid that approaches a colloidal solution. The topmost layer of this sediment is a slime, resembling protoplasm, and is indeed nearly a fluid. Over this rests the milky liquid aforenamed, which is in turn a series of zone-compounds that, on filtration, are found to consist of a colloidal substance, part of which is so attenuated as to pass freely through the filter paper,[7] leaving on the filter a gelatinous, jelly-like material. This jelly reminds one of what the entomologist now calls "plankton," the invisible and transparent organizations that are found, suspended, in all natural waters, and that serve as the long-mysterious food of minnows.

From a fullers' earth, fifteen parts of which are capable of precipitating one part of quinine bisulphate, an increased alkaloidal affinity was thus made possible, only *eight* parts being required to precipitate one part quinine bisulphate. This improvement in quality of the dried colloid from ordinary fullers' earth, being sufficiently energetic, as well as feasible in practical manipulation, was taken as a preliminary standard, and this standard is yet retained, although, by the process to be next named, the alkaloidal affinity of the material can be increased much beyond this point.

Second Process.—In the early course of my experiments it was demonstrated that, with the quality of earth used, with each manipulation of an alkaloid, the colorless wash-water contained a substance that, on evaporation, would crystallize colorless and permanent, if the alkaloidal salt were a sulphate; but that it was hygroscopic if the alkaloidal salt were a chloride. For example, sulphate of morphine and sulphate of quinine, each, on evaporating the washings, furnished a crop of permanent, colorless crystals, whereas the chlorides of these alkaloids furnished a hygroscopic salt. Reasoning from this, I concluded that each alkaloidal manipulation threw out extraneous earths, in the form of sulphates and chlorides of calcium (and possibly aluminum), from the fullers' earth, this indeed proving to be a fact. Dr. Waldbott demonstrated that the reagent had the power of even liberating free sulphuric acid, where no magnesium or calcium carbonates were present.[8]

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[5] That this reaction was due to a something in the fullers' earth not yet understood was evidenced by the fact that no two qualities of fullers' earth were identical in their alkaloidal adsorption qualities, some possessing this in a marked degree, while others were very feeble, as shown by Table IV.

[6] The successive washings depleted the substance of its inherent soluble salts, which have a tendency to granulate gelatinous hydrates.

[7] I have not as yet applied the ultra-microscope to this filtrate. In my opinion, it will be shown to carry dispersed colloids, and it may prove to be a very sensitive reagent in alkaloidal research.

My endeavor at this period was, however, not to determine the nature of the *side* products, but to increase the alkaloidal affinities of the hydrous aluminum silicate, by the successive alkaloidal recombinations and exhaustions that successively threw out portions of the earth compound. Table I gives an experiment with this object, and illustrates that 8½ grammes of the standardized reagent, having qualities capable of precipitating 1 gramme of quinine bisulphate, continuously decreased in weight by the repeated use of 0.5 gramme quinine bisulphate, and yet carried its revivified alkaloidal adhesive qualities through twelve manipulations, the final result showing that 3.2 grammes of this successively refined reagent were, as regards alkaloidal adsorption quality, as active as the entire amount first employed.[9]

Process.—One gramme of quinine bisulphate was dissolved in 80 Cc. water, to which was added 8.5 Lloyd's reagent (*purified, colloidal, hydrous aluminum silicate*). The mixture was well shaken and filtered, the filtrate showing no alkaloidal reaction with Mayer's test. The precipitate was washed with water, the total aqueous washings being evaporated to dryness, yielding colorless, non-alkaloidal crystals (mainly calcium sulphate). The alkaloidal precipitate on the filter was dried, powdered, and extracted by successive treatments with ammoniacal chloroform (100 Cc., in fractions, for each experiment), until the alkaloid had been practically eliminated. The exhausted reagent was then dried and powdered. It weighed 7.5 grammes. This was used as the material for subsequent manipulations, the foregoing process being eleven times repeated, making twelve manipulations in all. As noted before, after the first exhaustion of the alkaloid, but 0.5 gramme of quinine bisulphate [9] was employed.

TABLE I.

Amount of reagent employed.		Quinine bisulphate employed.		Dried residue.
8.5 Gm.	plus	1.0 Gm.	gave	7.5 Gm.
7.5 Gm.	plus	0.5 Gm.	gave	6.7 Gm.
6.7 Gm.	plus	0.5 Gm.	gave	6.2 Gm.
6.2 Gm.	plus	0.5 Gm.	gave	5.5 Gm.
5.5 Gm.	plus	0.5 Gm.	gave	5.5 Gm.
5.5 Gm.	plus	0.5 Gm.	gave	5.0 Gm.
5.0 Gm.	plus	0.5 Gm.	gave	4.7 Gm.
4.7 Gm.	plus	0.5 Gm.	gave	4.7 Gm.
4.7 Gm.	plus	0.5 Gm.	gave	4.1 Gm.
4.1 Gm.	plus	0.5 Gm.	gave	4.0 Gm.
4.0 Gm.	plus	0.5 Gm.	gave	3.7 Gm.
3.7 Gm.	plus	0.5 Gm.	gave	3.2 Gm.

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[8] Science, July 3, 1914, p. 35.

[9] A question here arises as to whether this increase is due, altogether, to the exclusion of inert constituents of natural fullers' earth. I do not, in these preliminary remarks, exclude the supposition that there may be also a *molecular* change, which increases the affinity of the residue after the alkaloid is separated, by the aforenamed successive steps. In fact, I am now aiming to give only experiments made in the passing along, to the exclusion of theories. The 0.5 gramme was selected because the chloroformic washings were not sufficient to remove the total 1.0 gramme first employed, which was as much as the reagent could hold.

From this table it will be observed that there was a steady, but not regular, decrease in the weight of the reagent. It will also be observed that there is much unevenness in the proportion of the dried residue. This can be accounted for by the occlusion of uncertain amounts of water of attraction, not evenly dissipated in the drying; by incomplete washing of some of the precipitates in the successive stages; and by uneven extractions of the alkaloid, as well as by error of manipulation. But this experiment was not intended to be precise in details, or other than a general one, its object being to discover whether or not the reagent decreased in weight during successive manipulations, the trend of the decrease, if any, and also whether the revived reagent resumed its alkaloidal activity after being depleted of alkaloid. This was satisfactorily accomplished, 6.5 Gm. alkaloid having worked 8.5 Gm. of the reagent, which in the manipulation was reduced to 3.2 Gm. The experiment was not repeated to ensure mathematical exactness, this problem being left for those concerned in scientific exactness.[10] I had established that for twelve successive combinations and depletions, the dispossessed natural reagent resumed its alkaloidal vitality, and that, with each experiment, a colorless, inorganic salt was eliminated.[11]

Samples Distributed.—Venturing now to assume that the problem of hydrous aluminum silicate in its relation to alkaloids was of sufficient interest to warrant me in bringing it before the scientific world, I made a considerable supply of the dried and powdered colloidal structure, and placed it, together with stony slabs of the same material and the process by which it was obtained, in the hands of a number of chemists, presumably interested in these directions. None of these parties had ever experienced, or heard of, the alkaloidal affinity of this material, but they received my statements concerning it, most cordially. The fact of an insoluble, therapeutically inactive reagent, that held its alkaloid in the presence of an acid and liberated it in alkaline contact, seemed impossible, but when tested it led to the evolution of a multitude of theoretical possibilities, both technical and therapeutic.

At an early date, as has been stated, Dr. Sigmund Waldbott, of the Ohio Mechanics' Institute, Cincinnati, became interested in the manipulation, as observed by him in my laboratory experimental work. Likewise, Dr. M. I. Wilbert, of Washington, D. C., Dr. H. W. Felter, of Cincinnati, Dr. H. M. Gordin, of Chicago, and Dr. Bernard Fantus, of Chicago, to all of whom I brought the subject, undertook special lines of questioning investigations[12] that lay within their particular provinces. It is not proper for me to print private statements, but I can refer to two public papers that resulted, one by Drs. Gordin and Kaplan, the other by Dr. Bernard Fantus.

Investigations of Drs. Gordin and Kaplan.—Among others to whom specimens of the reagent were forwarded, together with data giving its origin and method of preparation, was Dr. H. M. Gordin, of the School of Pharmacy, Northwestern University, Chicago, Illinois. From his very cordial reply (January 15, 1913) I extract one sentence, as follows: " Personally, I would be glad to go more deeply into the subject, and publish the results of my investigations." Much pleased, I supplied Dr. Gordin with an abundance of the reagent aforenamed, together with the process of manipulation, and all I knew concerning its general qualities. His first paper (Gordin and Kaplan), presented at the meeting of the American Pharmaceutical Association in Nashville, 1913, was mainly a study of the adhesive qualities of the reagent, in contrast with other adhesive substances, such as animal charcoal. This paper, printed in full in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1913, was the first that had been issued in detail concerning the subject. Being widely read and distributed, it called the attention of the chemists of the world to the phenomena connected with hydrous aluminum silicate. It was shown therein that both the rapidity and completeness of the extraction of alkaloids from aqueous solutions by means of " Lloyd's reagent " far excelled that of other " adsorbers," being, in many instances, almost instantaneous.

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[10] Dr. Waldbott's attention was called to this table and to this phase of the problem, at an early date, and he began a series of careful investigations to determine various problems suggested, as well as to establish the composition of the excluded inorganic salt. Dr. H. M. Gordin was also interested in this phase of the investigation, but by reason of the fact that it had been undertaken by Dr. Waldbott, did not, so far as I know, enter into the problem.

[11] On a manufacturing scale, I now use the revived reagent repeatedly, for subsequent batches of the same drug, with as yet no noticeable decrease in affinity. My percolators run, with such drugs as gelsemium and lobelia, from one thousand to two thousand pounds.

[12] I have aimed, in this paper, to avoid intruding on any scientific problem that I know is being investigated by anyone. My aim is to introduce just enough research, or exploration details, to make plain the manner in which the opening problems were met.

Continuing their investigations, Drs. Gordin and Kaplan contributed to the American Pharmaceutical Association, at its Detroit meeting, a report of an attempt to separate the alkaloids morphine and strychnine from their respective combinations (JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, December, 1914). In this, the difficulty in separating the total amount of the alkaloid by the process employed debarred analytical exactness, but reference was made to the fact that Dr. Hugh McGuigan had demonstrated that, in the living digestive apparatus, the union of the alkaloid strychnine and the reagent is readily disrupted, the action of the strychnine resulting. These physiological investigations by Drs. Felter, Gordin and Kaplan, and McGuigan have been given wide publicity.

Disappointment.—My first hope, seemingly well founded, after establishing the energy of this reagent in the presence of acids, was that by the administration of either highly colloidal fullers' earth, or a standardized, colloidal, hydrous aluminum silicate, the professional and scientific world would be able to antidote the action of any alkaloidal poison through its means, and that the reagent would thus prove a great boon to humanity.[13] I hoped that the reagent would grasp an alkaloid in the stomach and hold it to final elimination, thus preventing its assimilation. In order to determine this phase of the subject, Dr. H. W. Felter, Cincinnati, in 1911 made for me a physiological experiment, the record of which is as follows: [14]

TABLE II.

Report by Professor H. W. Felter, M.D.

Cincinnati, December 27, 1911.

9.15 A.M.	Administered to small dog, one year old, weighing 30 pounds, ¾ of one powder (1½ to 1¾ grains strychnine sulphate).
9.23 A.M.	No appreciable effects; followed at
9.24 A.M.	By tremulous whining; dog very alert; locomotion good.
9.31 A.M.	Locomotion slightly impaired; great uneasiness.
9.32 A.M.	Lay down as if very tired; got up in half minute, still whining.
9.33 A.M.	Gets on haunches frequently, and is very restless (or rather uneasy).

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[13] See Eclectic Medical Journal, Cincinnati, October, 1913, pp. 540–542.

[14] My mind naturally reverted to the " Clay Eaters " of the South, concerning whom I have been attempting to collect evidence, together with specimens of the clay thus employed. The result may yet be useful.

9.34 A.M. Locomotion is impaired in hind quarters, with contracted appearance; gets up and lies down at intervals of fifteen seconds.

9.35 A.M. *First convulsive start;* in half minute, another.

9.36 A.M. Convulsive starts frequent.

9.37 A.M. Ataxic or incoördinate gait.

9.38 A.M. Paralysis of hind quarters.

9.39 A.M. Sudden convulsive start, with tremors.

9.40 A.M. *First general convulsion,* in three convulsive movements.

9.41 A.M. While still in tetanic convulsion, administered a very little chloroform; but dog was dead before this could act.

(Signed) H. W. FELTER, M.D.

Next, Dr. Bernard Fantus made a like investigation, concerning which he reports as follows:

TABLE III.

Report by Dr. Bernard Fantus, Chicago, Ill.

Chicago, August 1, 1913.

10.30 A.M. Female dog, weighing 25 pounds, whose stomach was empty, was given by stomach tube 25 grains of alcresta strychnine sulphate (6 percent), representing 1½ grains strychnine sulphate (1.167 grains strychnine).

10.45 A.M. Up to this time animal was resting quietly.

10.46 A.M. Got up and walked; hind legs rigid. Animal is now restless, gets up and lies down, hind limbs rigid, until

11.00 A.M. Mild convulsion occurs.

11.01 A.M. Violent convulsion.

11.03 A.M. Violent convulsion.

11.06 A.M. to 11.10. Animal standing; limbs stiff; occasional convulsive starts; frequently rubs its nose against floor of cage.

11.10 A.M. to 11.13. Walking about; front as well as hind legs rigid.

11.14 A.M. Convulsion, more violent than any preceding, lasting several minutes, leaving animal prostrated, with gasping and irregular respirations, frequent convulsive starts and tremors.

11.34 A.M. Convulsive starts becoming more severe.

11.36 A.M. Violent and prolonged convulsion.

11.38 A.M. Another severe and prolonged convulsion.

11.40 A.M. Death.

(Signed) BERNARD FANTUS, M.D.

As already stated by Dr. Gordin, Dr. McGuigan (whose detailed report I have not received) had also established that the strychnine combination possessed, in alkaline contact, its lethal strychnine qualities, the difference between its action and that of the alkaloid alone seeming to be a more or less prolonged influence, before death resulted.

Dr. Fantus's Investigations.—Dr. Bernard Fantus, who is much interested in the subject of pleasant medicines, has recently published a work titled, "Candy Medication."[15] He naturally became concerned in these alkaloidal compounds because, while tasteless, or nearly so, they are yet therapeutically effective. In the year 1912 he obtained from me supplies of different alkaloidal combinations from which, even with strychnine, he made candies that were free from bitterness, his report being contributed to the American Pharmaceutical Association, Nashville, 1913. In 1915,[16] he contributed another and very valuable article, entitled "Fullers'

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[15] Candy Medication, C. V. Mosby Company, St. Louis, 1915.

[16] Journal of the American Medical Association, May 29, 1915.

Earth," on the antidotal value of hydrous aluminum silicate as found in fullers' earth, exemplifying the same with many studies concerning outreaches of the subject, together with a table giving adsorption values of different earths. His table on fullers' earth agrees with my experiences,[17] so far as demonstrating the uncertainty of fullers' earth in alkaloidal manipulation is concerned.

Other Opportunities.—Deeply disappointed in my hope that the reagent would prove to be an antidote in the direction of alkaloidal poisons, I was next led to a consideration of the practical utilization of the discovery for technical purposes. In this direction I had not given the compound any consideration whatever. However, Dr. Wilbert, who visited my laboratory in December, 1911, and Professor A. B. Stevens, of Ann Arbor, who also visited me in August, 1912, were both much interested in its varied problematical outreaches, including its possible practical applications. Each of these gentlemen foresaw clearly that a substance capable of holding an alkaloid intact in the presence of an acid, and of liberating it in the presence of an alkali, might possess advantages in therapeutic directions heretofore unattainable. Dr. Wilbert studied the report of Professor Felter, concerning the experiment just made by him (see Table II), and decided that the strychnine did not commence to exert itself until it passed into the alkaline secretions of the bowels, where it was dissociated from the reagent.[18] In March, 1913, I took the reagent, together with a number of alkaloids, to Washington, and inviting Dr. Lyman Kebler and Dr. H. W. Wiley to my room in the Raleigh Hotel, I illustrated for them its qualities with a line of experiments.[19] I now recall that, during the discussion following, Dr. Wiley referred to the fact that a physician had once come to Washington, enthusiastically advocating the use of fullers' earth as a local application for diphtheritic throat tissues. Some time afterward a private demonstration was made at the Hygienic Laboratory, Washington.

First Public Announcement.—In May, 1913, in a paper read before the Pennsylvania Pharmaceutical Association, Dr. M. I. Wilbert, of Washington, made the first public announcement in a pharmaceutical direction, following which came a communication by Dr. Sigmund Waldbott to the Journal of the American Chemical Society, June, 1913. The first detailed presentation of the adhesion phase of the reagent was made at the meeting of the American Pharmaceutical Association, Nashville, August, 1913, by Dr. H. M. Gordin, of Chicago, and at the same meeting Dr. Bernard Fantus, of Chicago, presented a paper that first introduced the compounds of the reagent in pleasant medication. The first public demonstration of the material and its activities before a body of scientists was made April 8, 1914, at the University of Cincinnati, at the General Meeting of the American Chemical Society. Each step in the precipitation of alkaloids by this reagent was there demonstrated with the able coöperation of my young assistant, Miss Eda

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[17] Table IV.

[18] I am not in a position to do justice to these compounds in a commercial sense. I am intensely interested in research directions that concern plant problems, and this work would necessarily have been disturbed, or perhaps even abandoned, had I taken upon myself the making and distributing of a new line of medicaments. Therefore arrangements were made with my friend, Mr. J. K. Lilly, in accordance with which the commercial problem was transferred to the establishment of Eli Lilly & Company, Indianapolis. In this arrangement I am much gratified and consider myself very fortunate.

[19] As yet I had made no printed reference to this subject, which was, indeed, but one phase of my laboratory research, and which, until this date, had seemed to me to need no conspicuity.

Van Guelpen, to the satisfaction of the audience. This demonstration was prefaced with a brief paper by Dr. Sigmund Waldbott, who made known the liberation of free sulphuric acid from quinine bisulphate by means of Lloyd's reagent, previously freed from its calcium content.[20]

Concerning Hydrous Aluminum Silicate.[21]—This historical sketch would be incomplete without some reference to the substance, hydrous aluminum silicate, itself. It will be noted that the standard established as being readily attainable was that of a powder capable of precipitating one gramme quinine bisulphate, by means of eight grammes of hydrous aluminum silicate. All my inquiries for references proving futile, for the reason that literature was absolutely devoid of any reference to the use of this material as an alkaloidal precipitant, a series of studies of the alkaloidal adhesion phases of various clays became necessary, with the object of obtaining a satisfactory commercial source. This search demonstrated that no two specimens seemed to possess the same alkaloidal affinity (see Table IV). Chemical methods did not avail to establish a standard, while lixiviation produced, from the same earth, various products of discordant alkaloidal affinities. Standardization proved thus to be most perplexing. Some clays that seemingly should have classed high ran very low; whilst others less promising were decidedly active. After an exhaustive study of many native American fullers' earths, as well as from England [22] and Japan, together with two Turkish clays that Mrs. Lloyd had found in use among the Turkish ladies for washing the hair, I determined to my own satisfaction that the degree of alkaloidal affinity depended upon an undetermined, but yet hydrous, *colloidal* condition of the silicate, which, under other forms, may be devoid of alkaloidal affinity. Whilst engaged in this very perplexing but most interesting study, Dr. Charles L. Parsons,[23] of the Department of the Interior, Washington, issued his bulletin [24] on fullers' earth, carrying the most comprehensive study of the subject I have yet obtained. This bulletin, however, is mainly technical, and being devoted to the use of fuller's earth as a clarifying agent with oils and as a decolorizer, it carries no reference to its alkaloidal affinities. However, a personal visit from Dr. Parsons led to the placing in my hands of a very complete line of American fullers' earths, from which I determined the alkaloidal affinities of all the specimens. These, tabulated as follows, exhibit the great unevenness of natural fullers' earths, the standard for comparison being "Lloyd's reagent," *eight grammes of which* are capable of taking up one gramme of quinine bisulphate.

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[20] These personal references are designed simply to establish, chronologically, the various contributions that were early made in this direction. They also enable me to express my thanks and obligation to the various friends herein named, whose encouragement was much needed, and who have my most grateful thanks. For years I had refrained from appearing publicly in connection with this problem, so many phases of which were, and still are, to me so mysterious.

[21] This material, as supplied by Eli Lilly & Company, is now known as "Lloyd's Reagent."

[22] English earths run better than most others, but are very dark and much contaminated with foreign materials that are difficult to eliminate.

[23] Dr. Parsons discovered that an application of heat to redness did not altogether destroy the decolorizing qualities of the earth. I have as yet, however, found no specimen in which the elimination of all its water by the act of calcination does not at the same time annihilate the alkaloidal attraction.

[24] Bulletin No. 71 Mineral Technology 3, Department of the Interior. Fullers' Earth, by Charles L. Parsons, 1913.

(*To be continued.*)

CONTRIBUTED AND SELECTED

AERIAL OR GASEOUS DISINFECTION.*

BY SEWARD W. WILLIAMS, PH.C., F.C.S.†

CONDITIONS IN ARIZONA AND MINNESOTA COMPARED.

As to "proper conditions," probably nowhere are conditions for natural disinfection as nearly ideal as in Arizona and New Mexico.

The following comparison of relative humidity and percentage of sunshine, as found respectively in St. Paul and Phœnix, was supplied by the United States Weather Bureau:

RELATIVE HUMIDITY, PERCENT.

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
St. Paul, Minn.:													
7 A.M.	83	84	80	74	74	78	79	83	83	80	80	83	80
7 P.M.	75	74	66	54	52	56	54	56	60	62	69	75	63
Phœnix, Ariz.:													
6 A.M.	68	65	59	48	39	33	51	59	52	53	62	66	54
6 P.M.	39	34	29	20	15	13	23	27	25	28	37	38	28

PERCENTAGE OF POSSIBLE SUNSHINE.

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
St. Paul, Minn.:	50	62	62	63	59	66	75	70	62	58	48	44	60
Phœnix, Ariz.:	73	78	78	87	91	93	83	82	88	88	83	80	84

It is interesting to note that, while Arizona has far more sunshine and much less humidity than Minnesota, the State Health Officer of Arizona says in answer to number 7: "It is not safe to rely entirely on fresh air and sunlight." And the State Health Officer of New Mexico says: "Very unwise [to rely on natural conditions]; use all precautions, but at the same time fumigate the best we know how."

Surely if conditions are not "proper" in these two states we cannot expect them to be so anywhere.

The following letter from Assistant Surgeon General J. W. Trask, under date of July 20th, will be of interest in this connection:

> Your letter of the 10th instant, addressed to the Weather Bureau, has been referred to this office because of the contained inquiry regarding the "natural aids and hindrances, in combating pathogenic bacteria," in Arizona and Minnesota.
>
> In Arizona the amount of sunshine is very great and the air is exceedingly dry, so that the outdoor conditions in Arizona will quickly destroy most pathogenic organisms, if these organisms are exposed to the sunlight and air. However, these conditions will not

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* Read before Chicago Branch of the American Pharmaceutical Association, November 16, 1915. Continued from page 285, March issue.

† Director, Scientific Department, Bauer & Black, Chicago.

directly affect pathogenic bacteria located within the body of a person. The extent to which they will combat such bacteria inside a house depends upon the conditions within the house, the windows, and whether they are kept open or closed.

In Minnesota the air within a steam heated house or hot-air heated house will be as dry in the winter time when the furnace is in operation as the air in Arizona unless unusual precautions are taken to add moisture to the air. While the dry air in such heated houses, and this applies to most all furnace heated houses in northern climates, is destructive to pathogenic bacteria exposed to the air, it is not destructive to such organisms within the bodies of the inmates of the houses and, moreover, it is detrimental to the health of the inmates themselves.

By direction of the Surgeon General.

Respectfully,
J. W. Trask,
Assistant Surgeon General.

THE LOGIC OF GASEOUS DISINFECTION.

Dr. M. J. Rosenau, in his standard work on "Disinfection and Disinfectants" (1902), says:

> A gas is the ideal weapon for destroying such an invisible foe as the infection of the communicable diseases, but the ideal gas for this purpose is still to be discovered. By reaching all portions of a room or confined space it lessens the risk of overlooking any surface upon which the infective agent may be lodged. Germicidal solutions are difficult to apply to all the surfaces of an ordinary living room, and it is furthermore difficult to hold the solution in contact with the ceiling, walls and other surfaces a sufficient length of time in order to obtain the certain action of the substance.
>
> There is practically only one gas suitable for general application—viz., formaldehyde. This substance comes nearer being an ideal disinfectant than any of the gases so far exploited. It is not poisonous, does not injure fabrics, colors, metals, or objects of art and value.

He goes on to explain that formaldehyde has distinct limitations, and makes it clear that, while superior as a germicide in warm, moist air, it is not an insectide.

Dry sulphur dioxide is the right gas to use for killing insects and vermin.

In his work on "Preventive Medicine" (1913), the same authority says:

> We now know that fomites play a comparatively minor rôle in the transmission of disease. The disinfection of rooms and objects does not now, therefore, hold the importance in the minds of sanitarians that it once did. However, if terminal disinfection prevents the occurrence of only a small number of cases it would still seem to be worth while. Moreover, what health officer would willingly allow his child to occupy the bed or handle the objects in a room soon after a case of typhoid, scarlet fever, tuberculosis, or diphtheria, without first applying some effective method of purification? So long as we possess such a reasonably efficient and satisfactory substance as formaldehyde, terminal disinfection should be practised after all diseases in which the environment may become infected, even though the danger be slight.

The germicidal power of formaldehyde is credited very largely to its property of combining directly with the albuminoids constituting the protoplasm of bacteria.

While it may be true that disinfecting gas does not penetrate far into heavy fabrics, cushions, etc., it is also true that most of the infection in a room is on the surface of things. Evidence has been advanced that, with the minimum amount ever authorized, formaldehyde gas at least penetrates a paper envelope, killing the test organisms within four hours.

Dr. Rosenau says (p. 91, "Disinfection and Disinfectants"): "Bacteria exposed directly to the action of a concentrated volume of the [formaldehyde] gas are destroyed almost instantly. Under similar conditions spores are sometimes killed within one hour. But in practical work it is necessary to prolong the time of exposure because the gas is evolved slowly from most forms of apparatus, and it takes considerable time for it to penetrate to all the corners and dead spaces of a room."

It may be noted here that the specific gravity of formaldehyde gas is so near that of air that diffusion through the room is readily facilitated if there is anything to start a circulation, as for example the hot air and gas rising from a fumigator in which heat is being used to drive off the gas; and the longer the lamp burns after the gas is driven off the longer will the effect on the circulation of air in the room continue.

THE IMPORTANCE OF DISINFECTION.

Francis Ramaley, Ph.D., and Clay E. Giffin, B.A., M.D. (Boulder, Colo.), in their work on "Prevention and Control of Disease" (1913), say:

> The germs of many diseases remain for a long time unaffected by exposure to the air. A room infected with diphtheria may be dangerous for many weeks after the recovery of the patient, unless disinfection has been carried out. Scarlet fever, smallpox, tuberculosis, and pneumonia may be taken by those exposed to infected air, even though the person having the disease be not in the room at the time. . . . Just as people may carry infectious material of disease in their clothing, so may it be carried in clothing which is shipped from the manufacturer to the dealer. . . . It is difficult to prove the extent of such distribution of disease, but it is highly probable that this means of starting an epidemic is more frequent than is usually supposed.

That Dr. Ramaley's ideas regarding the viability of pathogenic bacteria and the danger of fomites have recently undergone some change is evident from the following replies which he kindly made to the seven queries of the preceding pages:

1. I have come to believe that fumigation is of little importance in any case where the patient recovers and perhaps really unnecessary even when the patient dies or is removed during height of disease. In latter case *tuberculosis.*
2. Formaldehyde, it seems to me, is the best.
3. I believe that people (generally children) "catch" tuberculosis from others; that they do not get the disease from infected rooms.
4. I think there would be little necessity for such fumigation if the room were well aired and sunned.
5. I know of no case in which disease alleged to be due to fomites could be proved to have originated in such manner. Generally there was much more likelihood that a "carrier" or a light unrecognized case was the cause of infection.
6. Cannot answer for others. For myself, I recommend that school books be laid aside for a time; aired if possible. However, I doubt if even this is at all necessary.
7. I believe that the micro-organisms of disease, except those few that produce spores, lose all virulence soon after leaving the body of a patient. Hence, fumigation would seem to be unnecessary.

(Signed) FRANCIS RAMALEY.

B. L. Arms, M.D., Professor of Preventive Medicine, the University of Texas, Galveston, says in a recent letter:

> . . . . I am a firm believer in disinfection, but do not consider fumigation and disinfection synonymous terms. In 1910–11–12 we made in Boston a series of tests of the efficiency of fumigation and reached the conclusion that fumigation was not disinfection,

and is so often misleading to the public. A short paper on this was presented at the American Public Health Association at Washington in 1912. This was published in the American Journal of Public Health late in 1912. The fumigation of rooms tends to make the public believe that an inanimate object is at fault, overlooking what I consider to be a great factor, the personal carrier of diseases. The Journal of the Outdoor Life for October, which came this morning, has an interesting article on page 334 which bears out our contention. The conclusions of the New York Health Department are drawn only after very careful consideration and as a result of numerous practical tests.

In regard to the questionnaire I would answer the questions as follows:

(1) None. Disinfect instead. (2) All gases affect the surface only. They will not penetrate. I feel that the thorough airing out of the room after formaldehyde is one of the best results from its use. (3) ——— (4) Disinfection and renovation are better than fumigation. (5) I think that inanimate objects, other than those recently infected, play little part in the spread of disease. (6) In my opinion books play little part in the spread of infection. The patient affected with an acute infectious disease rarely handles books, and the drying action of the paper tends to kill any infection. It is also practically impossible to fumigate books, *i.e.,* to kill organisms in books. (7) Much more good will be accomplished by disinfection and renovation than by fumigation.

(Signed) B. L. ARMS.

Dr. M. J. Rosenau, Harvard University Medical School, under date of July 2, 1915, writes:

It would not be possible for me to answer your questions concerning disinfection in the confines of a brief questionnaire. The necessity for disinfection, as well as the germicidal agents to be used, and the method of using the same, varies with the circumstances, and also with the disease. I am glad you are making a distinction between fumigation and disinfection. Those who claim that disinfection is not necessary after measles and certain other infections really mean that fumigation may be dispensed with.

(Signed) M. J. ROSENAU.

The Saturday Evening Post for June 26, 1915, in an article unfavorable to fumigation, says:

The questions now are as to whether there is need for any disinfecting measures after most diseases, or whether more effective measures than the old fumigating operation should be taken. Undoubtedly there is sound reason for undertaking more vigorous disinfection. Paint, new wallpaper, fire, air, soap and boiling water are best able to take the enthusiasm out of any lurking germs.

In the report of the Michigan State Board of Health for August, 1915, p. 414, the following is credited to Prof. Edward D. Rich, State Sanitary Engineer: "Tuberculosis germs in shady places will retain life for days. Often germs are taken into the homes on the feet of pedestrians and in the homes the germs have been known to retain life for ten years."

In Section 159, p. 59, Sanitary Code of Louisiana (1911—latest obtainable from the Board, September, 1915), it is stated that "if, in spite of thorough disinfection and renovation, new cases should arise in a house that has been occupied by a consumptive, the premises may be condemned and destroyed by the State Board of Health whenever it seems advisable so to do."

Making allowances for varying dates, we still have a remarkable illustration of what Dr. Fulton on another page refers to as oscillation "extreme"—from the idea that disease germs do not live long enough outside the body to make it worth while bothering with them, to the conclusion that the only safe thing to do is to scrub, repaint, repaper, recalcimine or even burn the house down.

It's safe to say that the truth lies somewhere between these violent extremes, and that to be on the safe side we should still fumigate and in such manner, of course, as to disinfect.

Charles V. Chapin, M.D., Sc.D., Superintendent of Health, Providence, R. I., abandoned fumigation some years ago chiefly because he "did not believe that the house and its contents were a factor of any moment in the spread of disease." But coincident with abandoning fumigation he did a great work in effecting a better control of "carriers"—apparently healthy people who harbor pathogenic organisms, and, unknown to themselves or others, spread contagion in crowded places.

To what extent inefficient fumigation has been compared with no fumigation at all may be open to question. Certainly his vital statistics were greatly improved by his eliminating in a large measure the "carriers" as a menace to public health. If, as a large majority of the sanitarians who contributed to the foregoing symposium think, gaseous formaldehyde disinfection is justified, we certainly should not abandon it because we now know that a considerable share of infection results from "carriers."

Infection should be fought both by making old methods of fumigation efficient means of disinfection, and by looking after carriers.

The replies of Dr. Harper (Health Officer of Wisconsin) and Dr. O'Connell (Health Officer, Port of New York), on preceding pages, for example, seem none too conservative in the matter of retaining the safeguard of efficient gaseous disinfection.

WILL FORMALDEHYDE GAS KILL THE BACILLUS OF TUBERCULOSIS? IT'S MAINLY A QUESTION OF HUMIDITY AND TEMPERATURE.

With one death from consumption every 2½ minutes in the United States*—23 every hour, 548 every day, 200,000 every year—the question raised by Dr. Hurty, of Indiana, in his reply to question number 4 assumes great importance. He says: "Formaldehyde disinfection is not efficient against tuberculosis infection." Just one other of our authorities says the same thing—Dr. Meader, of Albany.

I asked Dr. Meader on what he based his conclusion and he replied that his attention was first called to the matter by Dr. Hurty, and that he determined to experiment for himself. He says: "I took tuberculous sputum, spread it out thinly on a glass slide and exposed it for twenty-four hours to the concentrated fumes of formaldehyde gas, after which I inoculated several guinea-pigs, and, much to my surprise, they all died in four weeks with characteristic lesions of tuberculosis in the inguinal lymph-nodes and spleen."

On page 151, "Practical Sanitation" (1914), by Doctors Gardner and Simonds, appears the following: "It was formerly thought impossible to kill the tubercle bacilli with formaldehyde, but if conditions are properly looked after, and the necessary amount of moisture is present, there is no trouble doing it. It is well to supplement the use of formaldehyde (which should last for at least six hours) with 2½ percent cresol solution, sprayed or mopped on."

The supplementary treatment is evidently to insure against failure due to conditions *not* being properly looked after.

It happens that Dr. Hurty wrote the introduction to this standard work. In it he says of the book: "Its teachings are true and to date, and it may be confidently stated that if its directions and lessons are heeded, the efficiency, wealth and happiness of the commonwealth will be greatly augmented."

Dr. Hurty is generally right, and all this does not prove that he is wrong in either of his apparently conflicting statements. As we shall see by the following evidence; his first statement is true if humidity and temperature are low, and the other true if humidity and temperature are relatively high.

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* Average figures from Michigan Board of Health report, August, 1915, p. 380.

On page 42 of Bulletin No. 42, Public Health and Marine-Hospital Service of the United States, Dr. Thomas B. McClintic says: "Upon the permanent vacation of the quarters occupied by a consumptive, whether through death, removal, or recovery, the room, and preferably the entire building, should be disinfected with formaldehyde gas, as described on page 9." (Formalin-permanganate method—10 ounces of formalin and five ounces permanganate, in a 10-quart pail, with air warm and humid, for 1000 cubic feet.)

The following letter from Assistant Surgeon General A. H. Glennan, under date of October 7, 1915, explains itself:

> The Bureau is in receipt of your letter of the 2nd instant inquiring as to the scientific basis of the statements in Public Health Bulletin No. 42 relating to the use of formaldehyde gas for the disinfection of premises vacated by consumptives.
>
> As suggested by you, the author did not take for granted his conclusions, but based these on the experiments described in Hygienic Laboratory Bulletin No. 27 entitled "The Limitations of Formaldehyde Gas as a Disinfectant." While these experiments tend to show the efficacy of formaldehyde gas as applied to tubercle bacillus, it is also recognized that conditions of temperature and humidity are very important.
>
> As of possible interest to you, there is enclosed a copy of Reprint No. 287 which will probably furnish the information desired by you in regard to terminal disinfection.
>
> (Signed) By direction of the Surgeon General.
>
> Respectfully,
>
> A. H. Glennan,
> Assistant Surgeon General.

In Bulletin 27 (1906)—now out of print—Dr. McClintic devotes over 100 pages to a report of exhaustive work in determining the limitation of formaldehyde gas as a disinfectant, with special reference to car sanitation.

For a sleeping car of 4500 cubic feet, 2000 Cc. of formalin and 1000 grammes permanganate were used, pieces of carpet bearing tuberculous sputum being exposed for two hours, the relative humidity ranging from 78 to 62 percent and the temperature from 83 degrees F. to 87 degrees. Sputum which had been exposed in the smoking-room was injected into a guinea-pig; pig chloroformed on 100th day; increased 255 grammes in weight, no lesions of tuberculosis. Sputum exposed on floor of main sleeping compartment and injected into guinea-pig; pig chloroformed 100th day; increased 235 grammes in weight; no lesion of tuberculosis. Control pig died of tuberculosis the 45th day. *Bacillus coli communis, B. diphtheria, B. typhosus* and *B. subtilis* were all killed in the same fumigation. Similar successful results attended numerous tests of the same kind, where temperature ranged from 74 degrees to 82 degrees F. and humidity from 65 to 58 percent. When air was cool and comparatively dry the results were not satisfactory. It should be taken into consideration that, owing to its many ventilators, a sleeping car could not be practically made as tight as an ordinary room, as shown by the small percentage of gas found in the cars when opened in two hours.

Four or five hours is usually allowed for formaldehyde disinfection in comparatively tight rooms; the longer, of course, the better.

Dr. McClintic's experiments proved conclusively that, with proper conditions of humidity and temperature, formaldehyde gas does kill the tubercle bacillus.

Variation of warmth and moisture in the atmosphere evidently supply all needed explanation of conflicting views regarding the value of formaldehyde fumigation after tuberculosis.

In Bulletin No. 287 (U. S. Public Health Reports, July 9, 1915), Past Assistant Surgeon H. E. Hasseltine says:

> For many years formaldehyde gas has been rated as the foremost gaseous disinfectant, and it still holds its place. Its germicidal effect, when applied under proper conditions, is not denied. While not as rapid as steam or hot water, it does disinfect within a short time. Disinfection by formaldehyde does not, however, mean merely the making of a disagreeable odor. It must be used in a temperature of 65 degrees F., or higher, and with a relative humidity of 65 percent at the beginning of the process. It is, useless to put formaldehyde gas in a room where the temperature is so low that polymerization can take place.

J. Scott MacNutt, A.B., S.B., in his "Manual for Health Officers" (1915), in chapter on cleansing and disinfection after tuberculosis, advises: "Formaldehyde fumigation, for disinfection of carpets, fabrics and surfaces not susceptible of treatment by scrubbing, vacuum cleaning and liquid disinfectants."

Regulation 6 of the Montana State Board of Health reads:

> When any dwelling is vacated after having been occupied by any persons known to have been suffering from tuberculosis, such dwelling shall be thoroughly disinfected in the manner prescribed by the State Board of Health for all other communicable diseases, except that the time the house shall remain closed for the action of formaldehyde gas shall be eight hours instead of four.

FORMALDEHYDE FOR DISEASE GERMS AND SULPHUR FOR INSECTS AND RODENTS.

It should be understood that, while formaldehyde is *by far the best gaseous germicide,* it has practically no value as an insecticide or rodenticide. If insects, other than mosquitoes, are killed by formaldehyde fumigation it is probably because they may have drunk water which, as in drops on a well-sprinkled floor, absorbed enough of the gas to kill through the digestive tract.

Sulphur dioxide is the most practical thing to use for killing insects and vermin. When used for *this* purpose, the dryer the air the better, because (1) the gas is practically as efficient, and (2) because it will not seriously tarnish metals or bleach and weaken fabrics, as would be the case if the atmosphere were damp.

The idea of using formaldehyde and sulphur at the same time is a mistake.* Instead of acting as synergists they seem to oppose each other.

For killing pathogenic bacteria use formaldehyde in a fairly tight room with the air as warm and humid as practicable. Then, if there are insects or vermin to be killed, use sulphur with the air as dry as practicable. One pound of sulphur per 1000 cubic feet should kill mosquitoes and flies in two hours, rodents should succumb to fumes from two pounds in four hours; and roaches, lice, bedbugs, etc., should be killed by five pounds in six hours.

Where no damage can be done by sulphur dioxide in a *humid* atmosphere (in which SO_2 combines with moisture to form H_2SO_3 which is to some extent oxidized by air contact to H_2SO_4), five pounds per 1000 cubic feet may be used to kill everything—disease germs, insects and rodents.

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* Gardner and Simonds ("Practical Sanitation," 1914) say, on page 60, that "the products of sulphur combustion unite with the formaldehyde and consequently neither portion is of value." They call attention on the same page to the objection to candles with wicks running through the paraform, "as too large a portion of the gas is burned in the process of volatilization." In short, sulphur is always to be burned, while paraform must never be allowed to ignite. With sulphur, fire creates the gas which does the work, while, if paraform catches afire, the formaldehyde gas is destroyed and rendered valueless.

Plants and pets should, of course, always be removed from a room before sulphur fumigation, and we have found that with full formaldehyde disinfection —2 ounces net, solid formaldehyde per 1000 cubic feet over night—nearly all of twenty different test plants showed some effect except the rubber plant. Formaldehyde has no effect on room furnishings and decorations other than plants.

Hydrocyanic acid is an efficient insecticide and rodenticide; but it is so exceedingly dangerous to handle that it should never be used where possibly escaping gas could reach either human beings or domestic animals.

A well-recognized authority says the addition of one-half ounce of camphor, to a solid formaldehyde disinfection for 1000 cubic feet, will kill insects. Experiments made by the writer with this method were disappointing, as were others along similar lines.

Para-dichlorobenzene has been proposed as an insect fumigant. But as one pound per *hundred* cubic feet is directed to be used at a temperature between 75 and 85 degrees F., with an exposure of 36 hours, it offers little as a practical insecticide. Details regarding it are given by A. B. Duckett in Bulletin of the U. S. Department of Agriculture, No. 167.

CHOICE OF FORMALDEHYDE METHODS.

Preference has been shown by many boards of health for the formalin-permanganate process. While some of the formaldehyde is actually consumed in the violent reaction, the sudden evolution of gas with moisture has advantages in the hands of experts. When permanganate gave out on account of war conditions, other oxidizing agents were resorted to, such as potassium dichromate (Pennsylvania) and chlorinated lime (Chicago).

It is noticeable that some sort of caution or warning goes with all such methods.

Regarding the permanganate method, Gardner and Simonds (" Practical Sanitation," page 59) say: " In this process the formaldehyde is poured over potassium permanganate crystals, in the proportion of one quart of the former to one pound of the latter.

"CAUTION! If the permanganate is thrown into the formalin it may explode." Capitals and italics theirs.

This amount is used in some states per 1000 cubic feet; but the United States Public Health Service directs only 10 ounces of formalin (40 percent solution of formaldehyde) and 5 ounces of permanganate if temperature is above 60 degrees F. and air is not too dry.

This government authority says (Bulletin 42, page 10):

" On account of the vigorous ebullition during the reaction, a ten-quart pail should be used for mixing therein 10 ounces of formalin and 5 ounces of permanganate. Even then a few drops of the mixture may be thrown over, so that it is well to place the pail in a large tin pan or upon something to protect the carpet or floor. To prevent this sputtering over there is some advantage in using a pail with a flared top. As the process is attended with slight danger of fire, the reaction, which is quickly over, should be watched through a window or the pails placed on a non-inflammable surface."

With the chlorinated lime method, as used in Chicago, goes a WARNING regarding the danger of injury to " woodwork, fabrics, etc.," should any of the disinfecting material come in direct contact with them.

In Pennsylvania, where the dichromate method is used, it is directed to pull "the tin container out of the room by an attached cord one-half hour after the reaction has been started. The residue should be removed from the can immediately and the vessel should be scrubbed with soap and water."

These dangers and inconveniences are avoided by volatilizing solidified formaldehyde (paraform) by means of applying heat under a metal receptacle containing it—two ounces net formaldehyde being used per 1000 cubic feet (according to Bulletin 42, Public Health and Marine Hospital Service of the United States)

DIFFERENT AGENCIES OF INFECTION SHOUD RECEIVE THEIR PROPER SHARE OF ATTENTION.

Prior to the recognition of carriers, the dangers from fomites and infected apartments were, it is true, over-rated. Now the pendulum, so to speak, shows a tendency, in certain quarters, to swing to the other extreme. It is easy to see how the presence of unrecognized carriers, in the home or in crowded places, can upset calculations regarding the efficiency of terminal disinfection. The fact, however, that the great majority of State health officers contributing to the symposium favor the continuance of gaseous disinfection indicates that a fairly stable equilibrium will soon be established, each agency for conveying infection receiving its fair degree of consideration.

Aerial disinfection has also suffered because (1) too little formaldehyde was used and (2) owing to lack of proper conditions of temperature and humidity.

When one considers the cost of the alternative offered—repapering, repainting, etc.—the slight expense of making the air warm and moist and using plenty of formaldehyde is a very small matter. It is quite practical and advantageous to supply some moisture with the disinfectant in commercial fumigators; but, as it is desirable to volatilize the formaldehyde as quickly as possible, the addition of much water to the formaldehyde has the objection of considerably prolonging the time needed to drive off the gas. The bulk of the moisture may best be obtained by introducing steam into the air independently, as by causing water to boil in the room in any convenient manner, or, in fairly damp weather, by simply sprinkling the floor liberally.

With the air thus properly conditioned the volatilization of two ounces solidified formaldehyde per 1000 cubic feet should insure efficient disinfection of the room and its general contents. Bedding and material which has been in close contact with the patient may well be sent to a disinfecting station, or at least be given a thorough sunning and airing, in addition. It should be remembered that the alternative of repainting, repapering, etc., leaves bedding, etc., to be cared for *entirely* in some other way.

CONCLUSION.

A large majority of the state health officers, joining in the symposium, favor a continuance of formaldehyde gas disinfection.

We should not neglect one cause of spreading communicable diseases (room infection) because we have found another (carriers), whatever the relative importance of the two agencies may be.

To destroy bacteria volatilize formaldehyde, without ignition, in warm, moist air.

To kill insects and vermin, burn sulphur in dry air.

While, as pharmacists, we should supply trustworthy means for combating communicable diseases, as citizens we should look for their underlying causes and assist in correcting them.

HOSPITAL CORPS OF UNITED STATES ARMY.*

For more than sixty years the American Pharmaceutical Association worked for advancement in pharmacy and its allied branches; its inception and all of its endeavors during this time have been not only for such advancement but the betterment of its members and pharmacists generally. This has been accomplished by the promotion of better and higher educational requirements, more efficient and higher standards for drugs, preventing sophistication and adulteration, and at the same time conserving and protecting the public health.

For years one of the endeavors of this organization has been the improvement of the condition of the pharmacists in the Government service. Before the Association entered this field of endeavor the conditions were such that men of pharmaceutical education and training were loath to enter the service as pharmacists. Pharmacists in the Navy and the Public Health Service have received recognition from Congress and their conditions are much improved, largely through the efforts of the American Pharmaceutical Association, but the Hospital Corps, U. S. Army, has not fared so well; the conditions to-day are practically the same as they have been for years. The American Pharmaceutical Association has for about ten years been working and endeavoring to show the Department and Congress that it was necessary to improve the conditions of the Hospital Corps if they desired to obtain efficient men to enter the service and retain the men who composed the Corps. Many of the latter had become expert in bacteriology and the preparation of serums and vaccines, for the reason that the law governing this branch of the service offered absolutely no inducement whatever for men of pharmaceutical training to enter the service, and those who had acquired knowledge and become expert in certain lines could obtain better remuneration from private business concerns.

The Surgeon-General has reported many times his inability to obtain the men he desired and that it was impossible to secure a full complement of men for the Corps.

The present program of preparedness of President Wilson, providing for the reorganization of the Army, seemed to be the proper time to do something for the members of the Hospital Corps. The endeavors of the Surgeon-General and that of the American Pharmaceutical Association have helped to persuade the Committee on Military Affairs of both Houses of Congress to report a bill which contains provisions for the betterment of the Corps and its members, and there seems to be no doubt that this bill will shortly become a law.

By the terms of this bill the Hospital Corps becomes the enlisted force of the Medical Department, two new grades are provided: Master Hospital Sergeant, at $75 per month, and Hospital Sergeants, at $65 per month and allowances. Below these come the six former grades ranking in pay from $15 to $50 per month for Sergeants first class. Master Hospital Sergeants are to be appointed by the Secretary of War, but only after an examination before a board of medical officers, which examination shall include pharmacy and the applicant must have served at least twelve months satisfactorily as hospital sergeant or sergeant first class. It also provides that original enlistments hereafter for the Medical Department shall be made in the grade of private, and the Secretary of War may make such regulations as are deemed necessary. It is further provided that the total number of enlisted men in the Medical Department shall be approximately equal to, but not to exceed, five percentum of the total enlisted strength of the army authorized by law, except in time of war, when the Secretary of War may increase the number as the service may require. It is further provided that the number in each of the several grades shall not exceed the following percentages of the total authorized enlisted strength of the Medical Department: Master Hospital Sergeants, ½ percent; Hospital Sergeants, ½ percent; Sergeants, first class, 7 percent; Sergeants, 11 percent; Corporals, 5 percent; Privates, first class, and Privates, the remainder of the number authorized by law.

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* By S. L. Hilton, Chairman of the Committee on the Status of Pharmacists in the Government Service.

The following is a comparative statement showing how the proposed bill will increase the strength and improve the condition of this branch of the service.

	Based on the present strength of the army, total 4436.	Proposed increase as provided by the bill, 6328.
Master Hospital Sergeants	22	32
Hospital Sergeants	22	32
Sergeants, First Class	300	442
Sergeants	488	696
Corporals	222	316

Ratings: Surgical Assistants, $5; Dispensary Assistants, $2; Nurse, $3.

The bill has passed the House of Representatives and will shortly be considered by the Senate, the time is now propitious for our Association to assist in this good work and use every endeavor to have the provisions of this bill enacted into law, *a letter to your Senator will be of help.*

While the titles provided by the bill are not what we have desired, the provisions are in accord with what we have been asking and working for. Our Association would have preferred that the ranking men be given a commission as pharmacists; the opposition, however, was so strong that to continue any endeavor with this object in view would have no doubt resulted in defeat not only in this provision, but in the other increases we were asking. We therefore concluded to accept and work for the proposition as provided by the bill and thereby help the members of this branch of the service, many of whom are members of our organization.

In a way the pharmacists of the army are receiving some slight recognition and the provisions of the bill show that Congress and the Department are recognizing the value of the pharmacists in the Army. Let us further continue our efforts so that in the near future the pharmacists in the Army will be commissioned.

" If we were to sail along under fair winds, each lying at his ease, life would teach us nothing but lazy selfishness. The contrary wind gives us the fellowship of the oars—the need of keeping time with one another, of each helping the others while he pulls away on his own thwart. No finer sound rises to heaven than the comrade song of the rowers. Surely we all know that the best things life has brought us—the things that bring the deepest satisfaction—have been the chances of service."—*Selected.*

THE TEACHING OF COMMERCIAL PHARMACY.*

BY HENRY P. HYNSON.

Strongly obsessed with a sense of the importance of this occasion and deeply impressed by the far-reaching opportunities offered me, I refrain from apologizing, explaining and, indeed, from reciting the usual opening anecdote, that might put me more fairly before you.

If you question why I regard the occasion of so great importance, I answer, without hesitation, that pharmacy and pharmacists are now suffering more from the lack of proper commercial teaching than from any other cause or, it may be, from all other deficiencies combined, and what affects pharmacy and pharmacists concerns all those with whom these have to do, meaning the multitudes who are patrons of pharmacists. And more, this is just the time when commerce and commercial things are claiming the attention of the world—next to war—and it is now that the best of the world's knowledge is being applied to commerce, and it is now that the difference between the commercialist and the professionalist, merely because of their vocations, has faded entirely away or into the faintest shade.

A word regarding our mutual responsibilities. While uncomfortably sensible of my own responsibility and fearing that I have presumed to accept one so great, I am not afraid to warn you that yours is even greater than mine. Not only must you try to understand me and comprehend my meaning, but you must put my offerings to the test and, if I am incorrect, you are, in duty bound, to find the truth upon this subject and not only set it upright in your own minds, but you, in your responsible various connections with this great institution and its unusual influence, and you, with your responsible connections with the drug trade and the pharmaceutical press of this great metropolis, considering the limitless influence of the latter, must make the truth, as you find it, felt all over this land of ours. I have no desire to flatter you and your city, but New York is now, or soon will be, "*The World*" and as goes New York, so goes the world. I should feel that I had filled my greatest possible mission, could I make you really appreciate how much you could do for pharmacy and then induce you to do it.

One may reach an age when he feels that he must not always make favorable criticism and when he must, for the good he may do, run counter to the views of others. I trust, therefore, that I may be pardoned for stating that I believe all the addresses which have heretofore been delivered before you upon different phases of commercial pharmacy have failed to impress you with the importance of making commercial training a prominent part of the curriculum of a school of pharmacy, because all of them, in my opinion, were distinctly post-graduate in character and did not set forth plans for the more elementary teaching of the commercial science, as it may be applied to pharmaceutical practice, nor did they show how practical a commercial course may be made.

I feel that I must protect myself behind an actual "wall of necessity" for this training, otherwise I will be pounded with the old well-worn protest that: "All this knowledge should have been acquired before the student enters a school of pharmacy," and I very confidently believe that those who would so argue know very little about the condition and character of mind that is required to take up this study. It is not the proper kind of study for a child—for an undeveloped mind. Educators discredit themselves when they include specific commercial training in a high school course. Commercial science is justly classified with the other practical sciences, such as those that are combined in a course of pharmacy. It is much the same as the different phases of engineering, and back of all this, as a greater support to the "wall of necessity" are the *actual needs* of the students, even high school graduates, which may be easily ascertained by requiring them to write a commercial letter, such as an application for a position or a request for credit. Scientific farming may have improved the quality of grain, but the mills must still grind the grist that is brought to them.

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* An address at the Annual Meeting of New York College of Pharmacy, March 21, 1916.

It has occurred to me that I may more successfully present to you my ideas regarding the details of a course in commercial pharmacy, by reading to you, as far as time will allow, from the manuscript of a treatise on the subject that I have had under preparation for a number of years, but which I have not hastened to finish and publish, because of my numerous enemies. "Oh, that mine enemy would write a book." And if I may be permitted to do so, I will give extracts and examples from the actual course I have been giving, with more or less changes, during the last fourteen years.

It will please and greatly assist me, if as many as are interested will bear with me patiently during the remainder of my address and, having heard what I have read and said, will be good enough to write me their honest convictions as to whether or not they believe such a treatise as outlined would be helpful to students of pharmacy, or if such a book, slightly or even greatly modified, would meet the needs of the time. For such criticism, I will be truly and greatly obliged.

From the proposed treatise I read as follows:

COMMERCIAL PHARMACY.

Introductory Description.

Commercial Pharmacy, as contemplated by this treatise, includes all those doings, peculiar to the business life of the pharmacist, which are not usually regarded as scientific or technical and which have not been generally taught in colleges of pharmacy nor fully discussed in pharmaceutical text-books and other books relating to pharmacy. It has much to do with such practical and oftentimes intricate subjects as were formerly taught apprentices by their preceptors. It includes knowledge of general business principles, facility in business practices and familiarity with business forms; all of which are desirable and becoming accomplishments that will greatly assist their possessor in acquiring creditable pharmaceutical and business standing. They are qualifications such as all classes of tradesmen might use to advantage and are not peculiar to the drug business, but are such as are absolutely necessary to make one competent to properly conduct a retail pharmacy, maintain necessary credit and win financial success.

Leading credit men connected with the wholesale drug trade have freely announced the belief that the business education of pharmacists needs to be advanced and that a lack of commercial training is often the cause of many of them failing to meet their obligations, which means that, while they may be well trained in the scientific and technical phases of their profession, they are not, as a class, successful in a business sense; that is, do not accumulate money, a conclusion that is emphatically endorsed by pharmaceutical journals, leading writers and successful pharmacists. This defect in the preparation of pharmacists for business has been found, upon further investigation, to be so pronounced, that the National Wholesale Druggists' Association has thought it wise to urge its members to exercise almost a paternal supervision over retail druggists who deal with them, regarding their purchases, their investments and their book-keeping, which, although, no doubt, warranted, is, nevertheless, very humiliating to those of us who are ambitious regarding our calling.

Justice cannot be done the *profession* of pharmacy unless we accept the truth that, while the practice of the profession may, for purposes of profit, be dependent upon good commercial practices, pharmacy is not, itself, dependent upon them. The science and art of pharmacy might be quite successfully and most creditably practised without the slightest reference to trade considerations, just as the science and art of surgery may be practised without the slightest consideration as to how much is done or how much it pays. Let it be understood, then, that trade—what is known as barter and sale—is not an essential part of the profession of pharmacy, but is merely incidental to it; yet, trading is the money-making feature of pharmacy.

The handling of articles which are entirely apart from the real purposes of pharmacy and which may be supplied without the use of pharmaceutical knowledge or pharmaceutical technic, cannot be considered a part of the practice of pharmacy, but, since the purchase and sale of many such commodities are largely made by pharmacists, they may be consistently considered in a treatise on commercial pharmacy, side-lines auxiliary to pharmacy, but not a part of it. This must not make it appear that they must receive different commercial treatment. Drugs and medicines are merchandise and subject to exactly the same commercial control as the side lines.

THE SCIENCE OF COMMERCE.

If we regard the science of any subject to be the exact truth concerning that subject, so far as the truth has been discovered, then we may very properly regard the truth that may be learned about commercial things and doings as the science of commerce. And this real scientific knowledge to be had about trade and trading, bears the same favorable relationship to haphazard knowledge of such practices that the true and accurate knowledge of chemistry bears to the superficial kind that is learned in practice without training. The real, truthful knowledge of commercial practices is the kind that we should try to acquire, in spite of the fact that what we call commercial pharmacy, necessarily, deals with money getting, with profit making and is largely influenced by such considerations.

Regarding the different classes of pharmacists, while it is true that there are qualified pharmacists and assistant pharmacists, proprietors, managers and clerks, the commercial line dividing any one of these classes from another is generally imperceptible. Therefore and because members of these several classes are constantly changing their relative positions, no attempt will be made, in this treatise, to provide special teachings for any particular class of pharmacists.

THE GENERAL AND FAR-REACHING USEFULNESS OF COMMERCIAL PHARMACY.

Those who are just beginning the study of pharmacy should gain, as rapidly as possible, commercial knowledge similar to that which may be acquired from the following pages, because the possession of some such knowledge will not only *prepare* them for promotion, but its use and application will greatly assist in securing the promotion and the greater financial reward that every properly constructed person desires.

To the registered pharmacist and salesman, it will be, for the same reason, most helpful and, to the manager, proprietor, member of a firm, or officer of a corporation, commecial accomplishments are, unquestionably, necessary, and, since a great many retail pharmacists develop into jobbers and manufacturing pharmacists, who *must* follow good business principles, this training, which is meant to be fundamental, will serve admirably as preparation for these larger fields of commercial activity.

FUNDAMENTALS: THE ADOPTION OF STANDARDS; FORMING MODELS FOR IMITATION.

The very first and, by all means, the most important move that a student of pharmacy should make, is the one which will establish standards for himself. He should fix in his mind models with which he may compare himself; by which he may ascertain his needs, discover his short-comings, and test his progress. Without these standards of models and without these comparisons, he will be unable to know how he should appear and act, or what he should study and how much he should know. While at school, standards of study are fixed for him, but, when he has successfully passed out of college, in addition to the standards for his personality, which he has already adopted, he must also create, for himself, social and business standards of excellence.

THE FIXING OF STANDARDS.

Nothing so greatly affects the progress and success of an individual as do the standards or models he has set up for himself, and these must be many, including those of: carriage, manners, cleanliness, conversation and character, in addition to educational and technical standards.

When looking for these, especially for standards relating to our own personalities, we should often go out beyond our own homes and out beyond our own circle of friends and acquaintances. We must ascertain if those among whom we have been thrown are what are known as "*conventional*," meaning in accord with the times and the better doings of the times in which we are living. One must not follow the mannerisms or styles of his natural surroundings, if these do not agree with what is accepted by the world as being in good form. This is best illustrated by the outrageous and disgraceful table manners of many reputable families, which, to follow, would ostracize one from anything like polite society. Extravagant or snobbish standards should not be thought of, but standards that are based on good usage should be adopted, such as would be acceptable to the majority of the more intelligent people of a community; acceptable, especially, to persons who are educated and have travelled.

Standards may not, necessarily, remain fixed, or the same, indefinitely. They should be changed as greater intelligence and better opportunity may indicate, but they should not be changed merely to agree with fads, so-called, or influences that are not creditable to follow, such as the tendency to imitate foreigners or those much given to exaggeration. Reference will be made to particular standards, while treating the various subjects that will follow.

THE PERSON.

The personality of the pharmacist, or of one who proposes to become a pharmacist, is of much importance. While pharmacy is a vocation requiring no great physical strength or power, it does require a considerable amount of endurance and, because the hours of attendance upon duty are comparatively long and because most of the time devoted to business is, necessarily, spent indoors, it is not the proper engagement for those predisposed to tubercular trouble or those with anæmic tendencies. It is a business suited neither to a deformed nor to a crippled person; quick, well-ordered movements are required and extraordinary control and use of the hands and fingers are necessary.

As successful salesmanship is an important qualification of the pharmacist and since the personality of the salesman has much to do with his success, appearance, or address, as it is more politely called, must be seriously thought about, much thought about. One cannot, of course, change his features, neither can he materially alter his size, but there are some defects which may be remedied. The habit of stooping, for instance, may be and should be overcome, by thoughtful and determined effort; rounded shoulders may be corrected by similar effort, assisted by braces; an awkward, ungainly gait or slovenly carriage may be easily changed; bad, unsightly teeth may be improved or replaced by a dentist; nothing so greatly hinders good conversational effects as do imperfect teeth. To a careful, discriminating person, such remediable defects will create disgust of a most uncomplimentary nature. Besides, decayed teeth are frequently the cause of one of the most repulsive characteristics a person may possess; one that may be a great hindrance, even to commercial success, and always a nuisance to those who must come in close contact with such an unfortunate, who, in many instances, is not at all conscious of the heavy handicap he is carrying—an offensive breath. One should strive to ascertain the true condition of his exhalations and, if far from normal, he should seek, by all possible means, to correct the trouble, which must arise from either: carious teeth, as before stated; an unhealthy condition of the mucous membrane lining the mouth, nose or throat; a disordered stomach; lack of care, or uncleanliness. Unfortunately, we become used or insensible to odors that are a part of us and we must not, therefore, be too sure regarding our bodies. There are many conditions, especially diseased conditions, which may make us very unpleasant associates, consequently, effort should be constantly made to discover such troubles and, when found, they should be treated medically, surgically or dentally, as the special defect may require.

PERSONAL CLEANLINESS.

Personal cleanliness includes, besides the general cleanliness of the body, proper attention to the hair and beard and, *especially, care of the hands and nails;* regular, daily and persistent attention to the latter is suggested. One should, early in life, learn to be his own barber, so far as his beard is concerned, and certainly his own accomplished manicurist.

Consideration of the delicate—rather, the indelicate—subject of personal uncleanliness will, no doubt, be thought out of place, by some persons, in a course of study bearing the title this one bears but, when it is remembered that conditions, actually existing conditions, need to be treated and that it is intended to remove, as far as possible, all hinderances to commercial success, criticism upon this point, at least, should be withdrawn. Indeed, our best efforts should be directed towards rescuing the one stray sheep, while congratulating those more highly favored. It has been oftentimes and generally reported that the employment or continuance in employment of many technically qualified assistants has been impossible because of their very apparent uncleanly condition, which, of course, would render them objectionable to discriminating customers. It is also well-known that the outrageous want of personal cleanliness and the disgusting habits of some able pharmacists, who have been in business on their own account, have not only been the subject of much derision, but the real cause of financial failure. It is positively dangerous, then, for a young person seeking a creditable position in pharmaceutical or business life, not to have proper standards for his body and its keeping, or not to live up to these standards. Home training, it is admitted, should have provided for all this, but its failure should not be allowed to make commercial disaster certain. Let each individual make of himself, so far as possible, something of a model for those with whom he is to be associated, then, surely, he will not fail. Besides, next to a physician, surgeon or nurse, who should be more cleanly in person and habits than a pharmacist, and who, as a salesman or man of business, seeking to make favorable impression, should be more attractive? The standard for personal cleanliness should be fixed at the highest possible point and should be intelligently and conscientiously met.

DRESS.

Nothing can add so much to the business man's attractiveness as proper and careful attire, and nothing will so greatly detract from natural personal advantages as will careless and improper dressing. It was Disraeli, the great Lord Beaconsfield, who won distinguished and substantial success against the most trying obstacles, who said a man's success in life is largely dependent upon his tailor. Dress is a subject that requires observation, thought and study. To the possessor of ample means, it is a comparatively easy matter, but when one has correct and sufficiently high ideals in this direction, with but scanty means, it offers a serious perplexity at times. It is, however, a business difficulty which must be overcome in a business way. A pharmacist had better slight his store and stock than his wardrobe.

The selection of a tailor is a matter of nearly as much importance and about as difficult as the selection of a physician, a dentist or even a pharmacist! One is no more able to properly treat personal ailments than he is able to properly fit himself with a suit of clothes or select the proper quality of cloth. It is often because of their presumed abilities, in this regard, that so many persons are oddly and badly dressed. Warning is made against the average clothing salesman whose one object seems to be to sell, and who frequently makes veritable monkeys out of his too confiding customers.

Warning is as earnestly made against your own personal oddities, generally, and, especially, in this matter of dress, which often lead to the wearing of conspicuous and inappropriate apparel; including, of course, head and foot wear.

It is a perfectly safe rule that keeps one inside and along the middle lines of fashion, but away from extremes and fads. Seasonable dressing is important, not only for reasons of personal comfort, but for effect, also, as is *respectful* dressing. Respect and deference are always due customers, especially ladies: shirt-sleeves are never and nowhere respectful. Dress should be consistent with one's age and station. A professional man should invariably maintain the dignity of his profession in dress, as in every other respect.

If personal cleanliness is important, so is cleanliness in dress; indeed, it is paramount; to it, style and quality are secondary. Fine, fresh linen is the stamp of the gentleman, and the reverse is a heavy handicap to anyone who aspires to hold the position of a gentleman and win favor with the more refined. The pharmacist must be carefully dressed; it argues well for his prescription case and for his soda water counter. Surely it is most unfortunate ignorance or the direct necessity that leads one to use celluloid collars and cuffs. Yet, as vulgar and discreditable as these are, if clean, they are far better than is soiled linen.

Caution might be added here, against the possible offensive condition of the pharmacist's clothing, through the absorption of such odors as are produced by iodoform, asafœtida and the valerates; odors to which the operator becomes very nearly insensible, but which are particularly disagreeable to many laymen, especially to ladies. This condition prevails with smokers, particularly those using cigarettes; they have no idea how disagreeable their very presence may be, more certainly to those in ill health. The practice many pharmacists have, of using large quantities of perfume extracts, largely because they are at hand and are repeatedly handled, renders such persons very offensive to those of refined sensibilities. All of these very common-place matters need our closest attention and apply to the case of salesrooms and laboratories with as much force as they do to person and clothing.

To these chapters, I have added a chapter on the mind and its training, setting forth the necessity of orderly training of the mind for business purposes; a chapter on the application of general education to business purposes, making effort to show just where such general attainments may be made profitable; another on correct and pleasing speech, including, as sub-subjects, "The Voice," "Pronunciation," "The Selection and Valuation of Words," "Common Grammatical Errors," and "Improper Construction of Sentences." Also in this first part of the treatise, which is devoted to the personality of the commercialist, I have given considerable space to character, especially business character, and to personal address and manners.

In the second part of the proposed treatise, I have discussed, with great pains, business writing as being of paramount importance to the business man of to-day, referring more particularly to correspondence, including circular writing, and to the writing of advertisements. This chapter treats such subjects as: writing material; stationery; penmanship; typewriting.

Under "Contracts," a most important division, is discussed the rental and purchase of real property, agreements with public utility corporations, insurance policies of all kinds, yet following this consideration of contracts, serious warning is given against depending too far upon one's own knowledge; the employment of a competent attorney for complicated situations is strongly urged. Other subjects are: "Credits," "Credit Men," "Commercial Agencies," "Banks," and "Banking." Especially is the usefulness of the bank in its various phases fully set forth, which is closely connected with loans and the securing of capital. The control of capital sufficient to meet the requirements of the undertaking is seriously dealt with and the warning is plainly given against entering business without ample provisions of this sort.

Many of the daily details and many commercial practices are given practical demonstration in the division devoted to bookkeeping and, if, when I reach the opportunity, I have not already too greatly extended this address, I will illustrate the possibility of stating the theory and giving the practice of a commercial transaction at the same time.

Bookkeeping, which I prefer to style "Business Record Keeping," is comprehensive enough to be considered alone, at such an occasion as this. It should be taught in accord with the more modern and really scientific methods. It is no longer a system of forms and there is now an aversion with those who know bookkeeping to such terms as "single entry" and "double entry." Instead of these, should be used "incomplete" and "complete." There are fundamental principles or rules controlling the keeping of business records that are as fixed and as certain as their names imply: "Truth," "Fairness," "Justice," to men and things, are the directing and controlling influences. An accountant who cannot test the propriety of a charge by the "Golden Rule" fails to use his surest and best safeguard. The teaching by some that there is a difference between a personal and an inanimate account is pernicious.

So-called "bookkeeping" may be made very practical for the student of pharmacy, by using a month's business for an average retail store and by selecting December as the month and by giving the desire to close the fiscal year concurrent with the calendar year as an excuse for taking inventories and closing the books, the principles and practices involved in an entire year may be covered in this one month.

I have such a record. It includes entries sufficient to illustrate the principles involved in almost any transaction that may come up for treatment in the business life of the average pharmacist.

I will read three days of this record:

December 1. Began business with a capital of five thousand dollars in certified check, gift from Father, which was deposited in bank. Drew twenty-five dollars from bank to be used for small expenses, as needed.

Received invoice for shelving counters and wall cases amounting to $1200.00 from F. G. Bracket. Received invoice from H. O. Sale & Co., amounting to $905.10 for drugs, medicines, patent medicines. Paid 25 cents for bucket, 15 cents for scrub brush, 10 cents for soap, 25 cents for broom. Paid woman for washing windows and cleaning store, $1.00. Bought hatchet, 50 cents; nail puller, $1.25. Paid B. E. Good $6.00, insurance on fixtures. Paid T. E. Householder $50.00 for rent, in advance.

December 10. Received invoices from: Keen and Heighs, $19.20; H. O. Sale & Co., $34.92; a second invoice from H. O. Sale & Co. for $16.05; Cecil Cigar Co., $14.20. Paid for lemons, 25 cents, for soda fountain, and took out of stock for same, one bottle bromo seltzer, 34 cents; 4 ounces aromatic spirit of ammonia, 15 cents; 1 pint of alcohol for cigar counter, 38 cents. Cash sales: Merchandise, $16.40; soda water, $5.90; cigars, $3.50. Paid $2.50 for Pharmacopœia and $7.50 for Dispensatory.

December 15. Paid $25.00 for suit of clothes, by check. Received invoices from G. Lass Ware & Co. for bottles and corks, $9.50; H. O. Sale & Co., $14.60; freight on G. Lass Ware & Co.'s goods, 34 cents. Invoice from Charles Wright & Co., $6.35. Paid annual dues: State Association, $2.00; American Pharmaceutical Association, $5.00. Sold C. K. Harrison on account: Prescription 4697, 50 cents; 4698, 40 cents; 4699, 60 cents; atomizer, $1.00; dropper, 10 cents; 1 pound absorbent cotton, 40 cents. Sold Dr. A. R. Blaud 1 ounce calomel, 25 cents; 1 ounce Dover's powder, 35 cents; 1 pound absorbent cotton, 30 cents. Sold H. O. Sale & Co., ¼ dozen compound syrup of hypophosphites at $8.00, less 10 percent; ½ dozen aromatic castor oil, at 75 cents, less 10 percent. Cash sales: Merchandise, $34.90; soda water, $3.35; cigars, $1.50. Paid subscriptions to drug and soda water journals, $5.50.

It would be tedious to write of the multitude of items that may be presented to the student of a most practical nature, in connection with these records. All the details of making deposits, keeping a bank account, drawing checks; the purchase of certified checks, the responsibilities regarding checks, may be so demonstrated and actual practice regarding them secured.

The segregation of charges to the proper accounts is interesting and important. The establishment of proper and profitably kept "Department Accounts" may be fully set forth. Remarkable instances may be given of universal difficulties students have with some of the problems appearing in this record of thirty days, which is not only interestingly comprehensive, but is most profitably worked out by the embryo business man.

On the tenth and twentieth of the month, trial balances are required to be made and, following the thirty-first day, the following appears.

> "Make up inventories; make trial balance; take off a balance sheet; balance cash account and balance or arrange the other accounts to make the business or fiscal year begin with the calendar year."

In conclusion, let me commend to you who are already in business and have not become sufficiently familiar with accounting to be fascinated by it, the further study and investigation of the subject, that you may not only profit by its helpfulness, but that you may have this additional interest in your work and the added happiness it gives, in your lives.

INDUSTRIAL RESEARCH IN UNIVERSITIES.

BY H. K. BENSON.*

Popular interest has lent itself to the problem of a more intensive application of the discoveries of science to the industrial life of the nation. As time goes on and we catch glimpses of the coming reorganization of industry in Europe, we see more clearly than ever the necessity of making this nation more largely self-contained. This burden rests largely upon our productive capacity—the ability to utilize our own stores—and resources. Everywhere this challenge meets with enthusiastic response and our universities have caught the spirit of the new awakening.

The exact manner of participation will, no doubt, vary greatly with the type and character of the institution. The aloofness of the colleges and universities has not been due to unwillingness to participate in industrial upbuilding. It is in part the inheritance of classical ideals and of cultural requirements that has retarded the advent of industrial problems as subjects of study and research in the curricula of our colleges. But now, apparently, a general awakening has come alike to industry and to the educational institutions, with the result that both may be enriched by rational coöperation.

With this thought in mind, the University of Washington has organized a bureau of industrial research to which the industries of the state may refer their problems and by mutual assistance seek their solution. By this plan the University seeks to enlarge not only its usefulness in service, but also its efficiency in the training of its students, and through a greater coördination of its faculty. The general plan is as follows: A given industry submits its problem to the bureau and sets aside a sum of money to establish an industrial fellowship. Thereupon, a committee of the faculty, chosen with reference to fitness or expert knowledge of details required in the solution of the problem, prepares a working plan or outline of the investigation, which is next submitted to a similar committee of the donating corporation and jointly modified and accepted. A graduate student is then assigned to the project and is paid a stipend of not less than $500 per annum. As additional compensation he is allowed to offer his research for thesis requirements and to carry a limited number of hours to apply on the requirements for an advanced degree. The fellow therefore acquires not only academic advancement but a highly specialized training which frequently leads him into a place of responsibility in the given industry. The university gains, not only in its contact with the given industry through its service, but in the substantial impetus given to its graduate work, as well as the inspiring influence upon its undergraduate work. The industry secures its desired data and is further enriched by the familiarity of the faculty experts with its problems and by securing a scientifically trained worker who may be added to its staff.

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* Director of the Bureau of Industrial Research, University of Washington.

Incidental to the practical working out of the plan are a number of features which involve the overthrowing of traditional observances. For example, it may be necessary to withhold from publication for a limited period of time the results of the investigation. During this time the industry is expected to protect itself through the procuring of patents, or in other ways obtain the rewards of its enterprise. The community as a whole, however, always gains in the heightened efficiency of its industries, and thus is recompensed in a material, though perhaps indirect; manner.

The subjects offered for investigation cover a wide range. Problems dealing with iron and steel manufacture, fertilizers, and wood preservation have been assigned to the bureau and are under investigation. These problems bring into action the departments of geology, mining, chemistry, forestry, mechanical engineering, and civil engineering. The school of pharmacy is vitally interested in proposals to investigate the feasibility of a drug plant industry. The mild, humid climate of the Pacific Coast seems well suited to the growth of drug plants. Digitalis is found growing as a weed over many square miles of unused logged-off land. Belladonna thrives luxuriantly on the sandy loams and yields two crops per year, each of higher alkaloidal content than the pharmacopœial requirements. Golden seal, ginseng, cascara, and peppermint oil are already marketed in considerable quantities. A systematic study of the possibilities, including assays, plot tests, markets, and, finally, an association of growers, seems likely to be of interest and value, not only as a new industry for the state, but as a new source of supply within this country to drug manufacturers.

DRUG PLANT INVESTIGATIONS.

The U. S. Bureau of Plant Industry has carried on for a number of years experiments designed to ensure better methods of cultivating and utilizing drug plants, and noteworthy results have recently been recorded. About 150 species of drug and related plants are now under experimental culture on heavy clay at Arlington Farm and on sandy loam near Glen Dale, Md. At Arlington permanent plantings are being made, which will furnish material, now badly needed, for standardizing crude drugs. One important line of inquiry is in regard to the relation of special feeding to the development of the active principles in medicinal plants. A new strain of belladonna has been obtained by the Bureau through breeding and selection which has a greatly increased alkaloidal content and points the way to a notable improvement in the quality of this drug now found on the market.

COMBATING WAR PRICES BY THE USE OF GALENICALS.*

BY ROBERT P. FISCHELIS.

In these days of uncertainty and speculation in the drug market, it is important for the pharmacist to utilize all means at his command in an effort to meet the demands of physicians, and at the same time supply the remedies prescribed at as reasonable a price as possible.

Coöperation between the professions of medicine and pharmacy was never more urgently needed than it is to-day, and undoubtedly much good can be accomplished if the doctor and druggist will work together, while great harm may result if their paths diverge at this time.

Reports of the scarcity of some medicinal products are becoming more alarming each day, and those who have followed the situation closely feel that perhaps "the worst is yet to come." Pharmacists and physicians should therefore get together with the view of utilizing, as far as possible, those medicinal products which are at hand, and curtailing the use of those products which are scarce and high in price, either because of the isolation of the source of supply or because of artificial conditions created by speculators.

It is expected that physicians and pharmacists have the welfare of the public at heart, and while it is impossible to prepare and compound medicines without making a charge commensurate with the market prices of the drugs contained in them, it may be possible, in some cases at least, to prescribe drugs or preparations which, while giving similar therapeutic action, are lower in price than some others which are used in general practice. Of course, the selection of the drug rests entirely with the physician, for after a prescription is once written and given to the pharmacist it is his duty to furnish the articles called for and nothing else. If the components are not in stock and cannot be bought, then the doctor must decide what is to be used in place of the unobtainable article or articles. The pharmacist can make suggestions, however, which will tend to aid in relieving the situation. His intimate touch with and study of the drug market give him first-hand knowledge as to which drugs or chemicals are scarce, unobtainable, or extremely high in price, and whether or not this condition is to continue. Any reasonable physician confronted with the facts as they are will fall into line with the propaganda for cutting down the cost of medicines to the ultimate consumer—the public.

In looking over the pages of the United States Dispensatory headed "Index of Diseases," we find a list of drugs which may be used in the treatment of each ailment mentioned. Under some of these headings we have as many as one hundred suggested remedies. Surely, some of these could be eliminated at this time, if necessary, and there would still be a sufficient number left to cover the needs of the practitioner. Most authorities agree that there are very few specifics in medicine. A Public Health Officer not very long ago made the statement that there were only three specifics known to the medical man, namely: quinine for malaria, 606 for syphilis, and diphtheria antitoxin.

Of course, it is possible that some single drug or chemical which is very high in price at present may be the only one that will answer the purpose in a certain case, but such instances will be few, and when they occur it will, of course, be necessary to meet the market price of the article if it is obtainable, as is done in many cases at present when it is really unnecessary to go to such expense.

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* Read at the Philadelphia Branch of the American Pharmaceutical Association, March 14, 1916.

Our materia medica is such a large one and the armamentarium of most physicians is so small, comparatively, that we should find little trouble in adjusting things in some satisfactory way to tide us over the era of high prices.

No doubt if this matter is discussed in meetings such as these, numerous ideas will be brought out along the line suggested. The purpose of this paper is to present one phase of the matter which occurred to the writer a short time ago, namely: that many physicians have become so accustomed to writing for active principles of drugs when galenical preparations of the same will answer the purpose just as well, and perhaps better. It might be well to bring to their attention the fact that very many active principles have been made abroad and are not only high in price, but may soon be unobtainable, and that it is advisable to use galenicals wherever they can satisfactorily replace active principles.

A comparison of the percentage of increase in a few active principles and drugs, based on a comparison of prices obtaining about March 1, 1916, and June 1, 1914, might be of interest at this point.

It must be borne in mind, however, that all price comparisons are more or less uncertain at this time and the lapse of a few weeks, or even days, may make an enormous difference in the price quoted for an article.

Granulated opium has increased 48 percent, morphine 16 percent, codeine 10 percent, cinchona 40 percent, quinine 180 percent, coca 20 percent, cocaine hydrochloride 45 percent, nux vomica 33 percent, strychnine 67 percent, aconite 59 percent, aconitine 40 percent, belladonna 350 percent, and atropine 1000 percent.

These are only a few examples, and while they may not appeal to you as particularly striking in some instances, we must remember, that, with a few exceptions, the crude drug stocks in this country at present are used to a much greater extent for manufacturing galenicals than for extracting active principles. There is, therefore, more danger of a shortage of alkaloids than of drug preparations. The danger of shortage of galenicals is still further minimized by the fact that such drugs as belladonna, digitalis, cannabis, hydrastis, etc., have been grown in the United States in the past year in sufficient amounts to supply the requirements for extracts, fluidextracts, tinctures, and other preparations of these drugs, and it is safe to predict that during the coming summer the efforts expended in cultivating medicinal plants on this side of the water will be greater and more successful than was the case last year.

There was a time in the history of medicine and pharmacy—and it is not so far back—when active principles isolated from vegetable drugs were practically unknown. In those days tinctures, extracts, infusions, etc., were used exclusively when drug preparations were desired, and they produced results.

When one after another so-called active principle of the more common drugs was isolated and found to give satisfactory results, physicians naturally turned to this form of medication, and it certainly has its place in the modern materia medica.

In spite of the fact, however, that active principles of all the important drugs were obtainable just previous to the war, galenical preparations were by no means discarded. Many physicians feel that a single active constituent does not represent the curative property of a drug. Tincture of cinchona, for instance, is preferred in treating some conditions to the alkaloid quinine, which is really only one of several active constituents of cinchona bark. Likewise, tincture of opium and tincture of nux vomica are given preference to any single alkaloid obtained from these drugs in the treatment of certain ailments, and so it is with many others.

It is interesting in this connection to repeat the words of Professor A. Tschirch, of the University of Berne, which follow:

Under the influence of the successes of the modern synthesis of medicaments, and the understood theory of the so-called active principle, we have been gradually abandoning drugs, in spite of experiments carried on for hundreds of years. Many physicians have already disaccustomed themselves to the use of drugs. But they cannot be replaced, and the wish that I expressed in London, in 1909, " Let us go back to drugs," found an echo much sooner than I expected, and in more extended circles than I had dared hope.

How can one replace rhubarb by a solution of emodin, ipecac by emetine, opium by morphine, digitalis by digitoxin, ergot by ergotoxine or by the interesting bases isolated by Barger and Dale, which, according to the recent experiments of Kehrer, do not even act on the uterus? Emodin, emetine, quinine, digitoxin, and morphine are pharmacological individuals, different from the drugs themselves, and should be numbered among remedies not to replace the drugs, but to stand beside them.

Since we know that there is in the drug a dominant principle, but that the effect is not produced by this principle alone, we are more than ever obliged to make a profound chemical study of the drug in all of its elements.

There has sprung into existence a school of " Alkalometry " or " Active-Principle Therapeutics," whose maxim is, " The smallest possible quantity of the best obtainable means to produce a desired therapeutic result."

We accept this maxim without becoming " dyed-in-the-wool" alkalometrists, for our object is to bring to the attention of the physician just what is the " best obtainable means," at this time, of producing " a desired therapeutic result."

The great objection to galenical preparations voiced by alkalometrists is that galenicals are not dependable because of the variation in active-principle content of drugs, and because of the deterioration of vegetable preparations. Modern methods of drug cultivation, manufacture, assay, standardization, and preservation overcome this objection in a large measure, if not entirely. When a vegetable drug is assayed, both chemically and physiologically, by reliable methods and skilled workers, one may rest assured that the strength of that drug is known, and when such a drug is used to make a tincture, fluidextract, or extract, and the resulting product is again assayed, chemically and physiologically, one may be assured that something is known of the strength of the finished product. Modern pharmaceutical methods carry us still farther, however, for we are not satisfied with knowing the strength of a preparation, but we adjust its strength to standards given in the Pharmacopœia or otherwise recognized, and then the physician who prescribes a dose of 10 minims of a standardized tincture, or 1 grain of a standardized powdered extract, knows just exactly how much active principle his patient will receive.

The rate of deterioration of galenical preparations is not nearly as great as some alkalometrists would have us believe. We know that fluidextract of ergot, tincture of digitalis, and strophanthus deteriorate under ordinary laboratory conditions, but this deterioration can be minimized in the first place by putting up the finished products in small containers so as to avoid frequent opening of a large container, and can be avoided entirely if air, which has been shown to be the cause of the deterioration in these preparations, is removed, both from the preparation and the container, by putting them up in ampoules and sealing them under a good vacuum. This matter was discussed fully in a paper by Pittenger and Vanderkleed, read at the meeting of the Pennsylvania Pharmaceutical Association, in June, 1912.

Another objection to the use of galenicals that is advanced occasionally is that their taste is unpleasant. This objection offers an excellent opportunity for the pharmacist to use his professional skill in compounding. He can suggest suitable adjuvants, diluents, and flavoring agents to disguise the taste of tinctures. He can recall to the mind of the doctor that the doses of fluidextracts are so small that it is often convenient to incorporate them into a pill mass, and that this mass can either be divided and enclosed in capsules, or can be divided and rolled into pills which can be coated to preserve them until used.

Lastly, we must not forget that standardized powdered extracts of drugs give very satisfactory results, and, mixed with sugar of milk, or some other diluent, they can be put up into capsules just as easily as active principles can be similarly dispensed.

Of course, galenicals cannot replace active principles for hypodermic use, and in cases where the crude drug is scarce or commands exorbitant prices, it may be advantageous to use the active principle for oral administration also. Taken on the whole, however, the writer believes it would be of considerable advantage to recommend to physicians that they prescribe galenicals wherever possible, in place of the active principles of drugs, at least for the time being.

If the suggestion, that physicians and pharmacists coöperate in the matter of adjusting the use of drugs to meet present conditions, is to be of any practical value it must for obvious reasons be brought to the attention of the medical practitioner. This can be done in the joint meeting of pharmacists and physicians which, I understand, is being arranged by the officers of this Branch. Perhaps a surer way of reaching the majority of physicians would be to prepare a list of drugs and chemicals similar to the " Index of Diseases " of the U. S. Dispensatory, and using distinctive marks after each drug named to indicate whether it is high in price, fair in price, scarce, or unobtainable in our market.

Another method would be to group the drugs according to their therapeutic effects. The following example will serve to illustrate this plan:

Analgesics:

	F.	H.	S.	U.
Opium	....	....	....	....
Morphine	....	....	....	....
Belladonna	....	....	....	....
Atropine	....	....	....	....
Cannabis Indica, etc.	....	....	....	....

F., fair in price; H., high in price; S., scarce; U., unobtainable.

Perhaps an alphabetical list of drugs and their preparations with columns provided for giving the information outlined above would, in the end, be most satisfactory. Prepared in this way, such a list could be used for making notations as changes occur in the drug market from time to time, and the physician could thus keep himself posted with reference to drug prices.

The pharmacist must naturally bear the brunt of the high-price situation, and it is desirable to seek as much relief from the tension as possible. The public is being educated to the necessity of paying more for medicines through the excellent monthly press bulletins issued by the publicity committee of the Pennsylvania Pharmaceutical Association. Let us go a step further now and seek the coöperation of the physician in making the best of the situation, to our own interest, as well as to the interest of the physician and the public.

NOTE ON TESTING CALCIUM COMPOUNDS.

BY CARL E. SMITH.

This is written to draw attention to a deficiency in the tests of the United States Pharmacopœia for the identification of calcium compounds and for the detection of certain possible contaminations, such as might easily lead to serious results because of the false sense of security the official tests would give. As an example, it might be mentioned that a specimen of strontium carbonate containing several percent of barium carbonate will stand all the tests given in the U. S. P. for establishing the identity and purity of precipitated calcium carbonate.

A sample of powder was recently submitted to the writer for analysis, which, because of a statement accompanying it concerning its uses, was supposed to consist, in greater part at least, of calcium salts. Preliminary tests proved presence of alkaline earth carbonate in large quantity. This led to the tentative conclusion that the powder probably consisted chiefly of calcium carbonate, as there was no reason to suspect presence of barium or strontium salts. Absence of color and complete solubility in dilute acids excluded the presence of elutriated native chalk. It was therefore expected that the U. S. P. tests laid down for precipitated chalk would definitely establish its identity as such and also detect in great probability any impurity or admixture. The sample stood all the tests and conformed also to the description of physical properties given. A little sodium chloride and traces of iron were found and as the U. S. P. lacks a test for magnesia, which is often found in calcium salts to some extent, a test was made in the usual way with phosphate, and a reaction was obtained that apparently indicated presence of a small amount of that impurity. Dependence on the U. S. P. tests, therefore, would have led to the conclusion that the specimen in question not only was calcium carbonate, but a salt of such a degree of purity as to warrant its use in medicinal preparations.

Further examination, however, showed that the sample was *not* calcium carbonate, that it contained neither calcium nor magnesium, but consisted of strontium carbonate contaminated with about 1.5 percent of barium carbonate.

The test upon which the Pharmacopœia relies entirely for the identification of calcium salts is the production of a precipitate on addition, to the neutral solution, of a solution of ammonium oxalate, said precipitate to be soluble in hydrochloric acid, but insoluble in acetic acid. But this reaction is by no means characteristic of calcium alone. It is shared by strontium and to some extent by barium and neither of these latter is excluded or detected by any other test provided. It is true that calcium salts are not liable to contain either barium or strontium as natural impurities, nor are these liable to be introduced in the course of manufacture, but accidental substitution or admixture might readily take place and such contingencies should certainly be guarded against by suitable means.

Examination of the text of the U. S. P. pertaining to other calcium salts show that in no case do the tests adequately differentiate calcium from other alkaline earth compounds. A test for the identification of a substance should be characteristic enough to distinguish it from everything else, beyond all reasonable doubt.

Of course, the remedy for the defects pointed out in this note is self-evident to every competent analyst. It need only be mentioned that a saturated water solution of calcium sulphate would seem to be the simplest means of detecting the presence of either barium or strontium.

Carl E. Smith Testing and Research Laboratory, 5 Beekman Street, New York.

PHARMACOPŒIAL BOTANIC DRUGS OF THE TWENTIETH CENTURY*

By E. N. Gathercoal

Latin plant names	English names	Austrian	Belgian	British	Croatian	Danish	French	German	Hungarian	Italian	Japanese	Mexican	Netherlands	Norwegian	Russian	Servian	Spanish	Swedish	Swiss	U. S. P. VIII	U. S. P. IX
191. Elaphrium tomentosum, res.	Tacamahaca																X				
192. Elettaria Cardamomum, ft.	Cardamon	X			X	X		X	X		X	X	X	X	X	X		X	X	X	
193. Elettaria Cardamomum, s.	Cardamon Seed			X																	X
194. Embelia Ribes, ft.				X																	
195. Equisetum arvense, ster. hb.	Scouring Rush	X							X												
196. Erigeron Canadense, v. o. fm. hb.	Oil of Fleabane																			X	
197. Eriodictyon Californicum, lv.	Yerba Santa																			X	X
198. Erythræ Centaurium, fl. hb.	Centaury	X	X		X		X	X	X	X			X		X	X	X		X		
199. Erythræa Chilense, hb.																	X				
200. Erythronium Dens-canis, stch. rt.	Adder's Tongue Starch										X										
201. Erythroxylon Coca, lv.	Coca Leaves						X	X		X	X	X					X		X	X	
202. Eucalyptus globulus, lv.	Eucalyptus		X		X		X			X	X	X	X			X	X		X	X	X
203. Eucalyptus globulus, v. o.	Oil of Eucalyptus			X	X		X		X	X	X	X					X			X	X
204. Eucalyptus rostrata, g.	Red Gum			X																	
205. Eugenia caryophyllata, fl. bd.	Cloves	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
206. Eugenia caryophyllata, v. o.	Oil of Cloves			X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X
207. Eugenia Jambolana, bk.	Jambul												X								
208. Eugenia Jambolana, s.	Java Plum												X								
209. Euonymus atropurpureus, rt. bk.	Wahoo			X			X													X	X
210. Eupatorium perfoliatum, fl. hb.	Boneset																			X	
211. Euphorbia resinifera, i. m. j.	Euphorbium	X	X		X	X	X	X	X	X		X		X	X	X	X	X	X		
212. Exogonium purga, tu.	Jalap	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
213. Fagus sylvatica, emp. o.	Beechwood Tar	X			X				X				X								
214. Ferula species, g. res.	Asafœtida	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
F. Asafœtida						X	X	X			X	X	X	X			X	X			X
F. fœtida				X				X					X					X	X	X	X
F. Narthex		X	X				X	X		X	X	X		X	X		X	X	X		
F. Scorodosma		X	X							X					X						
215. Ferula species, g. res.	Galbanum	X	X			X	X	X		X	X	X	X	X	X		X	X	X		
F. galbaniflua		X	X			X	X	X		X		X	X	X	X		X	X	X		
F. rubricalis		X	X								X	X		X	X						
216. Ferula species, rt.	Sumbul											X								X	X
F. Sumbul												X									
217. Ficus Carica, ft.	Figs																			X	
218. Fœniculum vulgare, ft.	Fennel	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
219. Fœniculum vulgare, v. o.	Oil of Fennel	X	X		X	X		X	X		X		X	X	X	X			X	X	X
220. Fœniculum vulgare, lv.	Fennel Leaves						X														
221. Fœniculum vulgare, rt.	Fennel Root						X			X							X				
222. Fragaria vesca, ft.	Strawberries											X					X				
223. Fragaria vesca, rh. & rt.	Strawberry Root											X					X				

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*Continued from page 293, March issue.

224.	Fraxinus Ornus, sacch. exud	Manna	X	X		X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
225.	Fumaria officinalis, hb	Fumitory						X					X					X				
226.	Galeopsis ochroleuca, fl. hb	Galeopsis	X																			
227.	Garcinia Hanburyi, g. res	Gamboge	X	X				X	X		X	X	X					X	X	X	X	X
228.	Gaultheria procumbens, v. o. lv	Oil of Wintergreen																			X	
229.	Gelidium species, mu	Agar						X					X			X						X
230.	Gelsemium sempervirens, rh. & rt	Yellow Jasmine			X							X	X							X	X	X
231.	Gentiana species, rh. & rt	Gentian	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	G. lutea		X	X	X		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
	G. Pannonica		X				X		X	X		X			X	X						
	G. punctata						X		X	X		X				X						
	G. purpurea						X		X	X		X			X	X						
232.	Gentiana scabra, rt	Japanese Gentian										X										
233.	Geranium maculatum, rh	Cranesbill																			X	
234.	Geum urbanum, rh. & rt	Water-avens					X															
235.	Gigartina mamillosa, th	Irish Moss	X	X			X		X			X		X				X		X	X	X
236.	Glecoma hederacea, lv. or hb	Ground Ivy						X										X				
237.	Glycyrrhiza glabra, rh. & rt	Spanish Licorice	X	X	X	X		X	X		X		X	X			X	X			X	X
238.	Glycyrrhiza glabra, var glandulifera	Russian Licorice	X			X	X	X		X		X		X	X	X	X		X	X	X	X
239.	Gossypium species, s. h. cl	Purified Cotton	X	X	X	X		X	X	X	X	X	X	X		X	X	X	X	X	X	X
240.	Gossypium species, f. o. s	Cotton Seed Oil																			X	X
241.	Gossypium species, rt. bk	Cotton Root Bark			X								X								X	
	G. arboreum												X									
	G. anomalum												X									
	G. Barbadense		X										X			X						
	G. herbaceum		X		X								X			X		X			X	X
	G. hirsutum															X						
242.	Grindelia species, lv. & fl. tp	Grindelia			X			X					X			X					X	X
	G. camporum				X																	X
	G. cuneifolia																					X
	G. robusta							X					X			X					X	
	G. squarrosa												X								X	X
243.	Guaiacum officinale, ht. wd	Lignum Vitæ	X		X				X		X	X	X		X	X		X		X		
244.	Guaiacum officinale, res	Guiaic	X		X	X		X			X	X	X				X	X	X	X	X	X
245.	Gynocardia odorata, f. o. s	Chaulmoogra Oil										X	X									
246.	Hæmatoxylon Campeachianum, ht. wd	Logwood	X		X								X								X	
247.	Hagenia Abyssinica, pistil. infl	Cusso	X	X	X	X		X	X	X	X	X	X			X		X	X	X	X	
248.	Hamamelis Virginiana, bk	Witchhazel Bark			X								X					X			X	

192. U. S. P. VII—E. repens.
193. U. S. P. IX—E. repens.
194. British—also from E. robusta.
198. Austrian—Centaurium minor.
203. Belgian, Norwegian, Swedish and Swiss recognize eucalyptol instead of volatile oil.
205. Belgian—Caryophyllus aromaticus; German and Swiss—Jambosa caryophyllus; Hungarian and U. S. P. VII and IX—E. aromatica.
206. Austrian, Belgian, Norwegian and Swedish recognize eugenol in place of volatile oil.
212. Belgian, British, Italian, Netherlands, Russian and Servian—Ipomea purga.
218. Danish—F. capillaceum; Russian—F. officinale.
224. Netherlands recognize mannite in place of manna.
227. Belgian and Spanish—G. morellæ.
228 U. S. P. IX—replaced by methyl salicylate.
229. U. S. P. IX—also from species of Gracilteria and Gloiopeltis.
230. British—from G. nitidum.
243. British, German, Italian, Norwegian and Swiss—also from G. sanctum.
244. British, Italian and U. S. P. VII and IX—also from G. sanctum.
247. British—Brayera anthelmintica.

Latin plant names	English names	Austrian	Belgian	British	Croatian	Danish	French	German	Hungarian	Italian	Japanese	Mexican	Netherlands	Norwegian	Russian	Servian	Spanish	Swedish	Swiss	U. S. P. VIII	U. S. P. IX
249. Hamamelis Virginiana, lv	Witchhazel Leaves	×	×	×			×			×	×	×		×			×	×	×	×	
250. Hedeoma pulegioides, fl. hb	Pennyroyal											×								×	
251. Hedeoma pulegioides, v. o	Oil of Pennyroyal																			×	
252. Helleborus niger, rh	Black Hellebore		×									×									
253. Herniaria glabra, fl. hb		×														×					
254. Hevea species, coag. milk-juice	Caoutchouc	×					×	×	×		×	×	×				×	×	×	×	
H. Braziliensis		×					×		×									×			
H. guyanensis		×										×					×				
255. Hibiscus japonicus, rt											×										
256. Hordeum vulgare, decorticated ft	Pearl Barley						×						×				×				
257. Hordeum vulgare, malted ft	Malt																			×	×
258. Humulus Lupulus, stro	Hops						×					×					×			×	×
259. Humulus Lupulus, gland, hairs	Lupulin	×								×		×	×						×	×	
260. Hydrastis Canadensis, rh. & rt	Goldenseal	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
261. Hydrocotyle Asiatica, lv	Indian Pennywort											×	×				×				
262. Hyoscyamus niger, lv	Henbane	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
263. Hyoscyamus niger, s	Henbane Seed					×	×					×					×				
264. Hypericum perforatum, fl. hb	St. John's Wort				×		×					×				×	×				
265. Hyssopus officinalis, fl. hb	Hyssop						×										×	×			
266. Illicium verum, ft	Star Anise	×					×		×	×					×			×	×		
267. Illicium verum, v. o	Oil of Anise			×			×													×	×
268. Inula Helenium, rt	Elecampane											×	×								
269. Ipomœa hederacea, s	Pharbitis Seed			×																	
270. Ipomœa orizabensis, rt	Mexican Scammony			×																	
271. Ipomœa Turpethum, rt. & st	Turpeth			×			×					×					×				
272. Iris Florentina, I Germanica and I pallida, rh	Orris	×	×			×		×	×	×	×	×	×		×		×	×	×		
273. Jateorrhiza palmata, rt	Calumba	×	×	×	×	×	×	×	×	×	×	×	×	×	×		×	×	×	×	×
274. Juglans regia, lv	Walnut Leaves	×	×					×				×					×		×		
275. Juniperus communis, ft	Juniper Berries	×	×		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×		
276. Juniperus communis, v. o	Oil of Juniper	×		×	×		×	×	×	×	×			×		×			×	×	×
277. Juniperus communis wd. rt		×																			
278. Juniperus oxycedrus, empy. o	Oil of Cade	×		×	×	×			×	×	×		×	×	×	×	×	×	×	×	×
279. Juniperus Sabina, tp	Savin	×	×		×	×	×		×	×		×	×						×	×	
280. Juniperus Sabina, v. o	Oil of Savin		×								×									×	
281. Krameria triandria, rt	Rhatany, Peruvian	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	
282. Lactuca virosa, i. m. j	Lactucarium								×			×	×				×			×	×
283. Lactuca sativa, hb	Lettuce											×					×				
284. Laminaria Cloustonii, ths	Sea-weed Tents																×				
285. Larix decidua, olres	Venice Turpentine		×		×	×	×		×	×			×	×	×		×	×	×		
286. Laserpitium Siler, ft																	×				

287. Laurus nobilis, ft.	Bayberries	X	X				X	X		X		X			X		X				
288. Laurus nobilis, f. o. ft	Oil of Laurel	X	X		X			X	X	X	X	X	X	X	X	X			X		
289. Laurus nobilis, lv.	Bay Leaves											X					X				
290. Lavendula vera, fl.	Lavender Flowers	X	X			X		X			X	X		X	X				X		
291. Lavendula vera, fl. tp.	Lavender Herb						X			X							X				
292. Lavendula vera, v. o.	Oil of Lavender	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X
293. Leonurus lanatus, hb.	Motherwort								X												
294. Levisticum officinale, rh. & rt.	Lovage							X											X		
295. Linum usitatissimun, s.	Linseed	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
296. Linum usitatissimun, gr. s.	Linseed Meal		X	X			X						X				X				
297. Linum usitatissimun, f. o.	Linseed Oil	X	X	X	X	X		X	X	X	X		X	X	X	X	X	X	X	X	X
298. Linum usitatissimun, pressed cake	Flaxseed Cake	X						X													
299. Liquidamber orientalis, balsm.	Storax	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
300. Lobelia inflata, fl. hb.	Indian Tobacco	X	X	X	X	X	X	X	X	X	X	X	X	X		X		X	X	X	X
301. Lycopodium clavatum, spo.	Lycopodium	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
302. Mallotus Philippinensis, gland. hairs	Kamala	X			X			X	X	X	X	X			X			X	X		
303. Malva sylvestris, lv. or hb.	Mallow Leaves	X			X			X	X	X		X		X			X		X		
304. Malva sylvestris, fl.	Mallow Flowers	X	X				X	X	X	X	X				X	X	X		X		
305. Manihot utilissima, stch. tu.	Tapioca											X	X								
306. Maranta arundinacea, stch. tu.	Bermuda Arrowroot		X			X						X	X								
307. Marrubium vulgare, fl. hb.	Horehound											X								X	
308. Marsdenia Condurango, bk.	Condurango	X	X		X	X	X	X	X		X	X	X	X	X	X	X	X	X		
309. Matricaria chamomila, fl. hd.	German Chamomile	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X
310. Matricaria chamomila, v. o.	Oil of Chamomile									X									X		
311. Melaleuca Leucadendron, v. o. lv.	Oil of Cajaput	X		X						X	X		X		X		X		X	X	X
312. Melilotus officinalis, fl. hb.	Sweet Clover	X						X		X		X			X						
313. Melissa officinalis, lv.	Balm	X	X		X			X	X		X					X			X		
314. Melissa officinalis, fl. hb.	Balm					X	X			X				X			X				
315. Melissa officinalis, v. o.	Oil of Lemon Balm		X																		
316. Mentha arvensis, var. piperascens, lv.	Japanese Peppermint										X										
317. Mentha arvensis, var. piperascens, v. o.	Oil of Peppermint										X										
318. Mentha crispa, v. o. lv.	Oil of Curled Mint			X											X						
319. Mentha piperita, lv. & fl. tp.	Peppermint	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
320. Mentha piperita, v. o. hb.	Oil of Peppermint	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
321. Mentha viridis, lv. & fl. tp.	Spearmint											X								X	X
322. Mentha viridis v. o. hb.	Oil of Spearmint			X																X	X
323. Menyanthes trifoliata, lv.	Bogbean Leaves	X			X	X	X	X	X		X		X	X	X	X	X	X	X		
324. Mercurialis annua, fl. hb.							X														
325. Minusops Balata, coag. milk juice	Balata Gum												X								
326. Morus nigra, fr. ft.	Mulberry						X					X					X				

253. Austrian and Servian—also from H. hirsuta.
257. U. S. P. VIII—H. distichon.
266. Italian—I. anisatum.
273. Austrian, British, Mexican and Netherlands—J. Calumba; French and Spanish—Chasmanthera palmata; Belgian—Cocculus palmata.
281. British and U. S. P. VIII—also from K. argentea (Para Rhatany) and U. S. P. VIII, also from K. Ixina (Savanilla Rhatany).
282. Spanish and Mexican—also from L. altissima.
285. Belgian, Italian, Netherlands, Russian and Spanish—L. Europæa.
286. Spanish—also from L. latifolium.
290. German and Swiss—L. spica; Austrian and U. S. P. VIII—L. officinalis.
303. Austrian, Norwegian and Spanish—also from M. vulgaris; Swiss—also from M. neglecta; Italian—also from M. Niceensis.
308. Belgian, French, Mexican and Spanish—Gonolobus Condurango.
311. Swiss—M. minor.
312. German—also from M. altissimus.

Latin plant names	English names	Austrian	Belgian	British	Croatian	Danish	French	German	Hungarian	Italian	Japanese	Mexican	Netherlands	Norwegian	Russian	Servian	Spanish	Swedish	Swiss	U. S. P. VIII.	U. S. P. IX.
327. Musa species, lv. wax	Cera Pisang												×								
328. Myristica fragrans, s. kl	Nutmeg	×	×	×	×		×	×	×	×	×	×	×		×	×	×	×	×	×	×
329. Myristica fragrans, v. o	Oil of Nutmeg		×	×							×									×	×
330. Myristica fragrans, f. o	Nutmeg Butter	×					×	×					×						×		
331. Myristica fragrans, seed arillus	Mace	×					×					×			×						
332. Myristica fragrans, v. o	Oil of Mace	×			×			×					×		×	×			×		
333. Myrtus communis, ft	Myrtle Fruit																×				
334. Myrtus communis lv	Myrtle Leaves																×				
335. Nasturtium officinale, fr. hb	Water Cress						×					×					×				
336. Nicotiana Tabacum, lv	Tobacco											×					×				
337. Nyssa silvatica, wd	Tupelo Tents																×				
338. Ocinum Basilicum, fl. hb							×					×									
339. Olea Europæa, f. o. ft	Olive Oil	×	×	×	×	×	×	×		×	×	×	×	×	×	×	×	×	×	×	×
340. Ononis spinosa, rh. & rt	Rest Harrow	×			×			×	×							×			×		
341. Orchis species, tu	Salep	×	×		×			×	×	×	×	×	×	×	×	×		×	×		
342. Origanum dictamnus, fl. tp	Cretan Dittany						×					×					×				
343. Origanum majorana, fl. tp	Marjoram	×					×			×		×	×				×		×		
344. Origanum vulgare, fl. tp	Wild Marjoram	×				×	×					×		×	×		×				
345. Orthosiphon stamineus, lv													×								
346. Oryza sativa, ft	Rice						×														
347. Oryza sativa, stch fm. s	Rice Starch	×	×	×				×					×						×		
348. Ourouparia Gambir, ext. lv	Gambir			×							×		×							×	×
349. Palaquium species, coag. milk-juice	Gutta Percha			×	×		×	×			×		×			×	×	×	×		
350. Papaver Rhœas, pet	Red Poppy Petals	×	×	×			×					×	×				×		×		
351. Papaver somniferum, c. i. m. j	Opium	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
352. Papaver somniferum, unr, ft	Poppy Capsules	×	×		×	×	×		×			×	×		×	×	×		×		
353. Papaver somniferum, lv	Poppy Leaves						×														
354. Papaver somniferum, s	Poppy Seed							×							×						
355. Papaver somniferum, f. o	Poppyseed Oil						×														
356. Paronychia argentea, fl. tp																	×				
357. Paullinia cupana, paste of seeds	Guarana	×							×			×					×		×	×	×
358. Petroselinum sativum, ft	Parsley Fruit																	×	×		×
359. Petroselinum sativum, v. o	Oil of Parsley					×								×							
360. Petroselinum sativum, rt	Parsley Root	×					×										×				
361. Peucedanum graveolens, ft	Dill			×																	
362. Peucedanum graveolens, v. o	Oil of Dill			×																	
363. Peumus Boldus, lv	Boldo Leaves											×					×				
364. Phellandrium aquaticum, ft	Phellandrum									×							×				
365. Physalis Alkekengi, ft	Winter Cherry						×														
366. Physostigma venenosum, s	Calabar Bean		×								×	×					×			×	×

367. Phytolacca acinosa, var. esculenta, rt.	Jap. Poke Root										×										
368. Phytolacca decandra; rt.	Poke Root											×								×	
369. Picræna excelsa, htwd.	Quassia		×	×			×	×		×	×	×	×	×	×		×			×	×
370. Picrorhiza Kurroa, rh.				×																	
371. Pilocarpus species, lf.	Jaborandi	×	×				×				×	×				×	×		×	×	×
P. Jaborandi	Pernambuco J.	×					×									×			×	×	×
P. microphylliss	Maranham J.																			×	×
P. pennatifolius	Rio Jaborandi		×				×					×					×				
372. Pimenta officinalis, ft.	Allspice											×					×			×	
373. Pimenta officinalis, v. o.	Oil of Allspice																			×	×
374. Pimpinella Anisum, ft.	Anise	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
375. Pimpinella Anisum, v. o.	Oil of Anise			×	×	×	×	×	×	×		×	×	×	×	×	×		×	×	×
376. Pimpinella Saxifraga, rh. & rt.	Saxifrage					×		×						×				×	×		
377. Pinites succinifera, fossil res.	Amber											×	×								
378. Pinites succinifera, emp. oil	Oil of Amber													×							
379. Pinus species, olr.	Turpentine	1,2 3	1		×	1,4	4	1	1,2 3,4 10	1-6	1	1		1	2	×	1,2 11	1,3 4	4	1,6	
380. Pinus species, v. o.	Oil of Turpentine	1,2 3	1	1	×	1	4	1	×	1-6	1		1-5 6	1	2	×	1	1,3 4	4	1,6	
381. Pinus species, res.	Rosin	1,2 3	1	1	×	1,4	4	1	1	1-6	1	1	1	1	1	×	1,2 11	1	1,6	1,6	1,6
382. Pinus species, emp. o. fm. res		1,2 3				1					×							1,2			
383. Pinus species, emp. prod. fm. wd.	Liquid Tar		1	1,2		1	1	1,2		1-6	1	1,2	1	1	1	×	1,2 11	1,2	1	1,6	1,6
384. Pinus species, emp. prod. fm. wd.	Solid Tar						1						1		1						
385. Pinus species, v. o. fm. tar	Oil of Tar					1								1				1		1,6	
386. Pinus species, pf. olr.	Burgundy Pitch		1		×				4		1				1				4		
387. Pinus species, v. o. lv.	Oil of Pine Needles	7		9	×				2	1,2 3,4					2	×			8		9
388. Pinus species, young sprouts							2			×					2		1,2		2		
(1) Pinus species																					
(2) Pinus sylvestris																					
(3) Pinus Laricio																					
(4) Pinus Pinaster																					
(5) Pinus Tæda																					
(6) Pinus palustris																					
(7) Pinus pumilio																					
(8) Pinus montana, var. pumilio																					

343. Austrian and Swiss—Majorana hortensis.
348. British—Uncaria Gambir.
349. Also from Payena species.
357. Austrian and Spanish—P. sorbilis.
360. Austrian—Carum Petroselinum.
369. German, Japanese, Norwegian and U. S. P.—Picrasma excelsa; Japanese—also from Picrasma quassoides.
375. Austrian, Belgian, Japanese and Swedish recognize anethol in place of the volatile oil.
376. Also from P. magna.

(To be continued.)

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in THE JOURNAL, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

OTTO RAUBENHEIMER, Brooklyn, N. Y.

No. 128.

LIQUID SODA SOAP.

Cottonseed Oil	300 mils
Sodium Hydroxide	45 Gm.
Alcohol	200 mils
Distilled Water	350 mils

Dissolve the sodium hydroxide in 50 mils of distilled water; as soon as solution has taken place immediately add all of the oil and 50 mils of the alcohol, and stir vigorously until saponification has taken place; allow to stand 15 minutes, then add remainder of the alcohol, stir well, and then the remainder of the distilled water.

(German Hospital, Philadelphia.)

No. 129.

BITTER WATER.

Magnesium Sulphate	600 Gm.
Sodium Sulphate	500 Gm.
Potassium Sulphate	3 Gm.
Sodium Chloride	45 Gm.
Sodium Bicarbonate	20 Gm.
Diluted Sulphuric Acid	10 mils
Water, a sufficient quantity,	
To make	8000 mils

(German Hospital, Philadelphia.)

No. 130.

CINNAMOL TABLETS.

ALKALINE ANTISEPTIC TABLETS.

(Wilberts' Tablets.)

Sodium Bicarbonate	0.25 Gm.
Sodium Borate	0.25 Gm.
Sodium Chloride	0.25 Gm.
Sodium Phenolsulphonate	0.25 Gm.
Oil of Cinnamon	0.005 Gm.

Make into one tablet.

One tablet dissolved in six tablespoonfuls of clean water. Useful as a gargle and nasal douche.

(German Hospital, Philadelphia.)

DIAGNOSTICAL REAGENTS.

The U. S. P. IX contains an excellent chapter of Diagnostical Reagents and Clinical Tests. In addition, the following are proposed for the A. Ph. A. Recipe Book, as being in frequent demand. Very often the authentic formulas are difficult to find, and it is for this reason that such reagents should be included in the A. Ph. A. Recipe Book.

Contributed by J. Atlee Dunn:

Reagents for Examination of Urine.

FOR ALBUMIN REACTION.

No. 131.

HELLER'S REAGENT.

Nitric Acid U. S. P.

No. 132.

ROBERT'S REAGENT.

Nitric Acid U. S. P.	100 mils
Sat. Sol. Magnesium Sulphate	500 mils

No. 133.

TANRET'S REAGENT.

Mercuric Chloride	13.5 Gm.
Potassium Iodide	33.2 Gm.
Glacial Acetic Acid	5.0 mils
Distilled Water, a sufficient quantity,	
To make	1000 mils

No. 134.

SPIEGLER'S REAGENT.

Mercuric Chloride	8 Gm.
Tartaric Acid	4 Gm.
Glycerin	20 Gm.
Water	200 mils

No. 135.

SOLUTION SULPHOSALICYLIC ACID.

Sulphosalicylic Acid	20 Gm.
Distilled Water, a sufficient quantity,	
To make	100 mils

No. 136.

SOLUTION TRICHLORACETIC ACID.

Trichloracetic Acid	33 Gm.
Magnesium Sulphate	50 Gm.
Water, a sufficient quantity,	
To make	100 mils

No. 137.

OLIVER'S REAGENT.

Consists of equal volumes of the following two solutions:

Solution No. 1.

Citric Acid	50 Gm.
Distilled Water, a sufficient quantity,	
To make	100 mils

Solution No. 2.

Sodium Tungstate	25 Gm.
Distilled Water, a sufficient quantity,	
To make	100 mils

FOR SUGAR REACTIONS.

No. 138.

HAINES' SOLUTION.

Copper Sulphate	2 Gm.
Potassium Hydroxide	9 Gm.
Glycerin	20 Gm.
Distilled Water, a sufficient quantity,	
To make	175 mils

No. 139.

BARFOED'S REAGENT.

Copper Acetate	13.3 Gm.
Acetic Acid 38 percent	6.0 mils
Distilled Water, a sufficient quantity,	
To make	200 mils

No. 140.

PAVY'S REAGENT.

(Modified.)

Fehling's Solution A	60 mils
Fehling's Solution B	60 mils
Ammonia Water	300 mils
Sodium Hydroxide	50 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

No. 141.

RUDICHE'S REAGENT.

Copper Sulphate	4.17 Gm.
Sodium Sulphite, Crystals	50.00 Gm.
Sodium Carbonate, Crystals	80.00 Gm.
Ammonia Water, a sufficient quantity,	
To make	500 mils

No. 142.

PURDY'S REAGENT.

Copper Sulphate	4.752 Gm.
Glycerin	38.000 mils
Potassium Hydroxide	23.500 Gm.
Ammonia Water	350.000 mils
Distilled Water, a sufficient quantity,	
To make	1000 mils

Contributed by the Chairman:

No. 143.

BENEDICT'S VOLUMETRIC GLUCOSE REAGENT.

Copper Sulphate, C. P. Crystals	18 Gm.
Monohydrated Sodium Carbonate	100 Gm.
Sodium or Potassium Citrate	200 Gm.
Potassium Sulphocyanate	125 Gm.
Solution Potassium Ferrocyanide 5 percent	5 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

Dissolve the carbonate, citrate and sulphocyanate, with the aid of heat, in sufficient water to make about 800 mils, and filter this solution if necessary. Dissolve the copper sulphate in about 100 mils of water and pour this solution slowly and with constant stirring into the first solution. Add the ferrocyanide solution, cool, and dilute with water to exactly 1000 mils.

Of the various ingredients, the copper salt only need be weighed with exactness.

Twenty-five mils of Benedict's Reagent will reduce 50 milligrammes of Glucose.

(J. A. M. A., vol. 57 (1911), p. 1193.)

Reagents for the Analysis of Fæces.

No. 144.

CASEIN SOLUTION.

Casein	1 Gm.
Monohydrated Sodium Carbonate	1 Gm.
Chloroform	1 mil
Distilled Water, a sufficient quantity,	
To make	1000 mils

No. 145.

PHENOLPHTHALEIN BLOOD REAGENT.

Phenolphthalein	4 Gm.
Potassium Hydroxide	24 Gm.
Distilled Water, a sufficient quantity,	
To make	200 mils

Add 20 Gm. powdered zinc and boil until color is discharged, and filter.

Contributed by Prof. C. P. Wimmer:

No. 146.

LINIMENTUM ANODYNUM, MOTTII.

Mott's Anodyne Liniment.

Chloroform,	
Tincture of Aconite,	
Tincture of Iodine,	
Ammonia Water, of each	15 mils
Soap Liniment, a sufficient quantity,	
To make	120 mils

(Bellevue Formulary.)

No. 147.

LINIMENTUM ANODYNUM.

(Jacob's Oil.)

Hydrated Chloral,	
Camphor, of each	2 Gm.
Chloroform,	
Ether, of each	2 mils
Oil of Sassafras,	
Tinct. of Opium, of each	1 mil
Soap Liniment, a sufficient quantity,	
To make	120 mils

(Bellevue Formulary.)

No. 148.

INJECTIO ADSTRINGENS.

Lloyd's Astringent Injection.

Zinc Acetate,	
Lead Acetate, of each	0.4 Gm.
Comp. Solut. of Hydrastine (N. F. IV)	45.0 mils
Distilled Water, a sufficient quantity,	
To make	120 mils

(Bellevue Formulary.)

No. 149.

LIQUOR ANTISEPTICUS DEODORANS.

(Telephone Solution.)

Thymol	2 Gm.
Oil of Pine Needles,	
Oil of Peppermint, of each	2 mils
Alcohol	60 mils
Liniment of Soft Soap	30 mils
Water, a sufficient quantity,	
To make	1000 mils

This solution is used for scrubbing the mouthpieces of telephones.

(Bellevue Formulary.)

No. 150.

MISTURA NERVINA.

Hammond's Mixture. Vance's Mixture.

Strychnine Sulphate	0.06 Gm.
Quinine Sulphate,	
Ferric Phosphate, of each	8.00 Gm.
Diluted Phosphoric Acid	120.00 mils
Syrup of Ginger, a sufficient quantity,	
To make	240 mils

(Bellevue Formulary.)

No. 151.

MISTURA EXPECTORANS, TURNERII.

Turner's Expectorant.

Ammonium Chloride	8 Gm.
Extract of Glycyrrhiza	12 Gm.
Camphorated Tinct. of Opium	16 mils
Syrup of Squill	30 mils
Water, a sufficient quantity,	
To make	120 mils

(Bellevue Formulary.)

Contributed by I. A. Becker:

No. 152.

BICHLORIDE AND IRON GARGLE.

Mercuric Chloride	0.03 Gm.
Tincture of Iron,	
Glycerin, of each	30.00 mils
Water, a sufficient quantity,	
To make	120 mils

(Michael Reese Hospital.)

No. 153.

ANTIPRURITIC LOTION.

Menthol	0.6 Gm.
Liq. Phenol	2 mils
Bismuth Subnitrate,	
Zinc Oxide, of each	15 Gm.
Cherry Laurel Water	30 mils
Formalin Antiseptic (No. 154)	60 mils
Rose Water, a sufficient quantity,	
To make	180 mils

(Michael Reese Hospital.)

No. 154.

FORMALIN ANTISEPTIC.

(Borolyptus.)

Cinnamic Acid	3 Gm.
Benzoic Acid	10 Gm.
Boric Acid	55 Gm.
Thymol	10 Gm.
Menthol	10 Gm.
Oil of Pinus Pumilio	4 mils
Oil of Eucalyptus	8 mils
Tincture of Myrrh	8 mils
Solut. of Formaldehyde	38 mils
Acetic Ether	4 mils
Glycerin	240 mils
Alcohol	625 mils
Water, a sufficient quantity,	
To make	20,000 mils

(Michael Reese Hospital.)

No. 155.

PULVIS INSPERSORIUS, ANDERSONII.

Anderson's Dusting Powder.

Camphor	6 Gm.
Starch	30 Gm.
Zinc Oxide	15 Gm.

(Michael Reese Hospital.)

No. 156.

INHALATION FLUID.

Oil of Eucalyptus,	
Oil of Pine Needles,	
Oil of Gaultheria, of each	2 mils
Comp. Tincture of Benzoin, a sufficient quantity,	
To make	30 mils

Contributed by the Chairman:

No. 157.

FULLER'S INHALANT.

Menthol	2.5 Gm.
Guaiacol	4.0 mils
Camphorated Tinct. Opium	125.0 mils
Comp. Tinct. Benzoin, a sufficient quantity,	
To make	250 mils

No. 158.

FULLER'S INHALANT.

(Modified.)

Terebene	4 mils
Fuller's Inhalant (No. 157), a sufficient quantity,	
To make	250 mils

No. 159.

BAUNSCHEID OEL.

Euphorbium	5 Gm.
Cantharides	3 Gm.
Olive Oil	100 mils

Digest on a water-bath and then filter. This oil is used as a counter-irritant after the skin has been punctured by a special instrument.

No. 160.

LEBENSWECKER OEL.

Croton Oil	1 mil
Olive Oil	100 mils

This oil is used as a rubefacient and counter-irritant, especially by foreigners.

No. 161.

WILLIAM'S EYE LOTION.

Sodium Borate	2 Gm.
Camphor Water	100 mils

CORRECTION.

Contributed by John K. Thum:

No. 127 A.

SOLUBLE CRUDE CARBOLIC ACID.

Liquid Soda Soap, No. 128	1000 mils
Crude Carbolic Acid	1000 mils

(German Hospital, Philadelphia.)

This is the corrected formula to replace No. 127 on page 310, in which the quantity of Crude Carbolic Acid was given as 100 mils, instead of 1000 mils. This preparation should have a strength of 50 percent.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CHICAGO.

The Chicago Branch of the American Pharmaceutical Association met Friday evening, March 24, for a discussion of photographic supplies as a sideline for druggists. There was a fine exhibition of cameras in connection with the meeting. Chicago druggists and students at the schools of pharmacy were invited and a large audience was present.

Messrs. R. I. Raymoth and J. W. Hammer, of the Burke and James Company, demonstrated the whys and wherefores of good and poor results on printing and developing and also discussed many interesting points regarding the installation and advertising of this side line and the profitable handling of it. The personal experiences of a number of those present indicated that in some localities at least, photographic supplies had almost ceased being a side line and had become a main line. One outlying Chicago drug store reported sales of photographic supplies amounting to $1200.00 per month during the summer.

Messrs. Hugh Craig and E. N. Gathercoal presented a number of lantern slides of prints furnished by the Hess-Ives Corporation of Philadelphia, illustrating the Ives process of photography in natural colors. The slides consisted of the actual prints mounted between plates of glass, and the pictures were very beautiful. The camera for this work is so constructed that three plates, each with a different composition, are placed into it at one time and all receive the same exposure. The plates are then removed and developed at the same time and under the same conditions. They are printed one on blue print paper, one on a reddish colored celluloid film and one on a yellowish colored film. The red colored film is placed on top of the blue print and the yellowish film on top of the red one, care being taken to have them properly superimposed. They are then mounted in a card holder or between plates of glass and constitute the finished picture. The naturalness of the coloring is really marvellous.

A resolution of sympathy for Professor W. B. Day in the loss of his wife was adopted by a silent rising vote.

E. N. GATHERCOAL, Secretary.

DENVER.

The March meeting of the Denver Branch of the American Pharmaceutical Association was held on March 21, at the Adams Hotel. As usual the members assembled for dinner at 7.00 o'clock, after which the meeting was called to order by President Hover.

The minutes of the previous meeting were read and approved; whereupon the Committee on Bathing Alcohol reported that they had met and after careful consideration had decided on the following formula:

Tartar emetic	1 Gm.
Formaldehyde	4 mils
Water	125 mils
Alcohol, a sufficient quantity,	
To make	1000 mils

This represents Formula No. 3 (alcohol, containing one part formaldehyde and 250 parts of alcohol), with the addition of tartar emetic in a quantity sufficient so that one ounce or more of the mixture when taken internally will cause emesis.

The label framed by the Committee reads as follows:

BATHING ALCOHOL FOR EXTERNAL USE ONLY

POISONOUS IF TAKEN INTERNALLY

Pure grain Alcohol modified to comply with the Federal Revenue Regulations.

The label to be printed in red ink.

The Committee reported that it had attended the last County Medical Society Meeting and presented to that body the above mentioned formula and the reasons for its adoption. They requested the Medical Society to consider this formula and approve same if they could do so consistently. The Medical Association decided to take the matter under advisement and also confer with the Pharmaceutical Association of the City at a joint luncheon to be held at the Metropole Hotel, Thursday noon, March 23.

Some discussion of the Committee's formula ensued. Mr. Jeancon mentioned that he had used this formula and found two people who complained that the mixture was irritating. Mr. Clayton reported that he had a similar report on the formaldehyde formula, most of the complaints coming from nurses in the hospital. He also stated that when they requested a change in the composition of the Bathing Alcohol he usually added carbolic acid or oil of cajuput, according to the desires of the customer. The addition was made to the Bathing Alcohol of the formaldehyde formula he had on hand, and invariably was told that they liked it very much better and that it was satisfactory in every way, showing that the irritating qualities of the Bathing Alcohol lay more in the imagination of the individual than in the mixture.

It was reported that tartar emetic is occasionally prescribed externally in 25 percent ointment and for that reason it would be doubtful if a 1 to 1000 solution could prove objectionable.

President Hover then spoke in regard to the Legislative Committee, stating that its duties should not only be confined to local legislative matters, but suggested that the Committee might take action on the Stevens Bill now before Congress, if the Branch so desired. On putting the question, it was found the members were in favor of such action and the Legislative Committee was instructed accordingly.

Mr. Clayton was called upon to report on the proposed change in the By-laws, making provision for Associated Membership. Mr. Clayton reported that he had not found time to frame the necessary changes and asked to have the matter postponed until the next meeting.

President Hover then introduced Mr. Schilling of the German-American Trust Company, who was on the program for an address entitled "Easy Money." President Hover stated that Mr. Schilling had asked for the permission to change the title of his address to "Dreamers." Mr. Hover thought that the change of title would not necessarily indicate any change in what Mr. Schilling was going to say.

Mr. Schilling's address on "Dreamers" was well presented and highly appreciated by his audience. He spoke of the "dreamer" as a creative genius of everything worth while in this world.

President Hover then called on Mr. E. L. Scholtz for response. Mr. Scholtz also spoke of the "Dreamer" and his influence on the progress of civilization.

Further expressions came from Mr. Hensel and Mr. Hover on the subject of "Dreamers."

President Hover then introduced Mr. Trimble of the Denver Dry Goods Company, who was on the program for an address entitled "Character." After telling a few greatly appreciated stories, he proceeded with his address, which proved to be a masterful presentation of the meaning and importance of "Character" in business life and institutions.

The next speaker on the program was Mr. Jeancon, who was then called upon to present a practical system of accounting for retail druggists, as carried on by him in his store for the past nine years, which Mr. Jeancon did in a terse and clear manner. Mr. Jeancon used a chart illustrating his system and explained the advantages of a system of accounting that would show the proprietor every day the amount of goods sold in the various departments of his store, as well as the gross profits made. The day's record in Mr. Jeancon's system was transferred to a monthly sheet, giving monthly totals, which could be further transferred to a yearly sheet, giving yearly totals, and prove valuable for comparison. Mr. Jeancon stated that he had calculated a monthly inventory from the basis of this record and on three actual inventories in the past nine years had found that the actual inventory at no time varied more than $100.00 from the theoretical inventories arrived at by his system.

Some discussion followed in which various questions were asked. It was generally agreed that Mr. Jeancon's system was excellent, especially for a small store with a limited number of clerks.

Quite a general and informal discussion started at this point, involving average gross profits, cost of doing business, increasing cost of doing business, proportions of the total volume of sales, represented by the various lines of drug store merchandising, as well as prescription work.

The Secretary reported that a suggestion had been made to him during the day in regard to the State Board of Pharmacy examinations, referring especially to that portion in the examination commonly known as "identification." The suggestion, as conveyed by Mr. Nitardy, centred on placing on the containers of drugs, chemicals, etc., used by the Board for "identification," certain technical information, as, for example, therapeutic action, dosage, solubility, physical or chemical characteristics, tests, etc. Such information would be of little value to a candidate not thoroughly familiar with the material in question but would be a guide of considerable value to the well-informed candidate and eliminate the guess work necessary when he must rely entirely on the appearance and his sense of taste and smell; the latter easily becoming confused when, as is the case in some boards, about 100 samples must be identified.

President Hover called on Mr. Clayton to state his view of this matter. Mr. Clayton said that he thought the "identification" part of the examination of the Colorado Board was too easy, as out of 37 candidates at the last examination, there was but one who was not able to qualify in this test and many who passed in this work showed a very poor standing in the other subjects of the examination. He spoke of the examination in general, and suggested that pharmacists make it a practice to visit the State Board, whenever possible, during examination time. The State Board would like to have the pharmacists present so they might witness their work and how the examinations were conducted. It would acquaint the druggists with the duties and work of the Board and give the latter the advantage of the former's criticisms or suggestions.

A vote of thanks was then extended to Messrs. Schilling and Trimble for their presence and addresses.

F. W. Nitardy, Secretary.

DETROIT.

The March meeting of the Detroit Branch of the American Pharmaceutical Association was held Friday evening the 17th, at the Wayne County Medical Society Building.

After a very enjoyable dinner, the meeting was called to order by President Scoville. The minutes of the last meeting were read and approved.

On motion of Mr. Hall, appropriate recognition of the birthday of one of the most distinguished Branch members, Dr. A. B. Lyons, was made.

The regular program was then taken up. The first speaker was Mr. F. F. Ingram, Junior, on "The Manufacture of Perfumes." Mr. Ingram, having spent several years in Europe in connection with the perfume industry, gave a very interesting and instructive talk.

Mr. E. R. Jones read a paper on "The Manufacture of Toilet Articles," covering many points of interest to the pharmacist.

The last speaker was Mr. George M. Schettler. Mr. Schettler has had an exceptional experience in the handling of toilet articles of the better class and his talk on "The History of the Perfume Trade in This Country," together with a description of the same as it exists, was both illuminating and exceedingly profitable.

The many questions asked each speaker showed that their subjects were of unusual interest.

The meeting then adjourned.

A. A. Wheeler, Secretary.

NASHVILLE.

The regular monthly meeting of the Nashville Branch, American Pharmaceutical Association, was held in the Music Room of the Nashville Y. M. C. A.; Thursday, March 16, in joint session with the Nashville Drug Club.

Owing to the absence of Dr. J. O. Burge, president of the Branch, and D. J. Kuhn, president of the Club, both of whom were prevented by sickness from attending, D. S. Sanders was selected to preside.

After the minutes had been read and approved, William R. White made a report of the work recently accomplished by the Publicity Committee, which showed that the coöperation of all of the Nashville dailies had been secured in an effort to inform the public of the causes of the exceedingly high prices of drugs. One lengthy article has already appeared in the Tennesseean and American and three shorter ones in the Nashville Banner. Others will follow from time to time. Improvement is also promised in the accuracy of the daily market quotations of drugs.

The great importance of informing the public about the conditions prevailing in the drug market was freely discussed by the members and clippings from the daily papers of several other cities were read.

A list of the day's quotations on the most commonly used drugs was read by the secretary and proved to be of deep interest to the members. A number of instances were cited where druggists had been selling at prices far below the present quotations and were compelled to replace their stock at advanced prices.

Mr. D. S. Sanders spoke on "How to Collect Debts." He favored short credits and close collections, and said he would allow no man to owe him an account six months without an attempt to enforce collection. He required his bookkeeper to furnish him with what he termed "a picture of his ledger" each month. This consisted of an alphabetical list of accounts due, with a column adjacent for credits. He claimed this saved much time, besides being an easy means of ascertaining the amount due at any time.

William R. White, Secretary.

NEW YORK.

The March meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Lascoff, at 9.00 P.M., on the evening of the 13th.

Upon motion the reading of the minutes of the February meeting was dispensed with and they were ordered adopted as printed.

The Treasurer's report was read and accepted with thanks.

Mr. McElhenie, Member of the Council, was not present and no report was received.

Chairman McCartney of the Membership Committee presented the names of Messrs. R. C. Stofer, of Norwich, N. Y., and C. Dill, of Brooklyn, N. Y., for election to membership in the Branch.

The following applications for membership in the parent association were presented and the Secretary was ordered to forward them to the General Secretary:

H. Rolff Planten, 93 Henry St., Brooklyn.
Burton T. Bush, 18 Platt St., N. Y.
George R. Tompkins, Hudson and Vestry Sts., N. Y.
F. F. Garcia, 100 William St., N. Y.
Wm. P. McNulty, 21 Gold St., Norwich, N. Y.
J. E. Mace, 168 Duane St., N. Y.

Dr. Anderson followed with a lengthy and interesting report concerning many different kinds of proposed legislative measures, national, state, and local.

Dr. Diner announced that he had appointed the following to serve with him upon the Committee on Fraternal Relations: Messrs. Lehman, Mansfield, Mayer and Walter. He furthermore reported that he wished to have the opinion of the members as to the advisability of holding a joint meeting with the County Medical Society early in the fall. Upon motion it was unanimously decided to ask the committee to arrange for such a meeting.

No report on Progress of Pharmacy was received as the Chairman was absent.

Letters of resignation were read from Messrs. R. C. Holmes and F. A. Hereth and were accepted with regret.

A communication from H. J. Schnell was received and action thereon deferred.

The following resolution was presented by Dr. H. V. Arny and unanimously adopted.

Resolved, That the New York Branch of the American Pharmaceutical Association favors the general adoption of the centigrade system of thermometric units and urges the passage of the Johnson Bill (H. R. No. 528), and be it furthermore

Resolved, That the Secretary of the New York Branch be and is hereby directed to send copies of this resolution to Congressman Johnson and to the Thermometer Committee of the American Association for the Advancement of Science.

The speaker of the evening, Editor Eberle of the Journal of the American Pharmaceutical Association, then entertained the members with a very interesting paper on the work of the Association and its Journal.

The paper was discussed by several members and it was then moved that the Editor be requested to print the speaker's paper. The motion was carried unanimously, and after extending a rising vote of thanks to Mr. Eberle the meeting adjourned.

Former President Mayo appointed himself a committee of one to greet our guest upon his arrival from Philadelphia and escorted him to the "Alps," where about twenty members were awaiting them and a very pleasant hour was spent before the meeting came to order.

The members were very much surprised at the sudden disappearance of our guest immediately after adjournment and it was not until the next day that some one discovered that our good friend Kantrovitz had kidnapped him in order to show him Madison Square Garden where the German Bazaar for the War Sufferers was being held.

JEANNOT HOSTMANN, Secretary.

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held March 14, at the Temple College of Pharmacy.

President Henry called the meeting to order at 8.45 P.M. The minutes of the last meeting were read and approved.

Mr. W. L. Cliffe, of the local Branch and chairman of the Committee on the Entertainment of A. Ph. A. Members, reported that a joint meeting was held at Atlantic City with committees from the New York and Philadelphia Branches and that they had recommended to the council a date soon after Labor Day as suitable for the National Meeting.

Mr. Cliffe also read a report from Prof. Kraemer, chairman of the Committee on the William Proctor Memorial, which included a short history of the bill now before Congress for the appropriation of $2000.00 and a site in the Smithsonian Grounds for a base and pedestal for the monument in memory of William Proctor, Jr. At the close of his report Mr. Cliffe moved that the secretary be instructed to request each member of the Philadelphia Branch to write to the Pennsylvania congressmen and senators asking their support for this bill (H. R. No. 11076). The motion was seconded and passed.

The treasurer submitted the following report:

Balance March 4, 1915	$ 58.75
Receipts from Dues	90.00
Total	$148.75
Expenditures	97.80
Balance	50.95
Funds on Deposit	$ 38.95
Received too late for deposit:	
Cash	6.00
Checks	6.00
	$ 50.95

(Signed) J. ED. BREWER, Treasurer.

Dr. Fischelis moved that the Treasurer's report be accepted and an auditing committee be appointed to audit his books. Carried.

President Henry appointed John G. Roberts and J. W. England to act on this committee.

The program of the evening was then taken up and Dr. R. P. Fischelis presented "Combating War Prices by the Use of Galenicals." This paper was interestingly discussed by Messrs. Apple, Morse, McNeary, Cliffe and Gershenfeldt. Mr. Gershenfeldt moved that the subject of Dr. Fischelis's paper be brought to the attention of the Committee on Fraternal Relations. Dr. Apple seconded the motion and, when put to vote, it carried.

The nominating committee submitted the following report: For President, J. W. Sturmer; for first Vice-President, W. G. Toplis; for second Vice-President, Ambrose Hunsberger; for Secretary-Treasurer, J. Ed. Brewer. Committee on Practical Pharmacy, J. C. Peacock, Chairman, Quintus Hoch and W. W. McNeary. Committee on Fraternal Relations, R. P. Fischelis, Chairman, F. E. Stewart and J. Atlee Dean. Committee on Membership. C. H. LaWall, Chairman, F. M. Apple and J. W. England.

Because of the intimate relation existing between Pharmacy and Chemistry, and because of the abolition of the Scientific Section of the Branch, which formerly devoted its sessions to the consideration of chemical as well as other pharmaceutical problems, your committee desires to recommend that the By-laws of the Branch be amended to include, under the heading of "Standing Committees," a committee on chemistry.

(Signed) E. FULLERTON COOK, Chairman.
JOHN R. MINEHART,
ROBERT P. FISCHELIS.

Mr. Cliffe moved that the report of the nominating committee be accepted and that the Secretary be instructed to cast the ballot. This motion was seconded and carried, the secretary casting the ballot electing the officers as called for in the report of the nominating committee.

Dr. Fischelis moved that the motion to amend the By-laws as suggested in the report of the nominating committee be laid on the table till April meeting. This motion was seconded and passed when voted upon.

President Henry then introduced the new officers, after which the meeting adjourned.

J. Ed. Brewer, Secretary.

PITTSBURGH.

At the meeting of the Pittsburgh Branch of the American Pharmaceutical Association, March 3, Dr. F. J. Blumenschein, Associate Professor of Pharmacy, Pittsburgh College of Pharmacy, presented a valuable paper on the topic, "Profits in Manufacturing Pharmaceuticals," in answer to the query "Is the greater profit obtained in selling or manufacturing?" Doctor Blumenschein maintained that just as much credit belongs to the manufacturing department as to the sales department; one is dependent on the other. That goods may be sold without the seller having anything to do with the manufacturing of them may be true, in a sense, but the seller pays for having them manufactured—he hires someone to do it.

It is well established that the more you know of your wares the better you can dwell upon their merits, and, naturally, if you make them yourself the certainty of their composition is assured. This is not true when you buy them in the open market, no matter how hard the manufacturer may attempt to make you believe in his integrity. The best way to obtain this knowledge is by doing your own manufacturing, not by reading the other fellow's label. You are all in business to make a profit, and when you buy your preparations from a manufacturer you may rest assured that his profit has been taken, and just to that amount your profit has been shortened. It is not reasonable to suppose that the product of a manufacturing pharmaceutical house is made by anyone possessing any better knowledge of pharmacy than you do, if you are a graduate of a reputable school of pharmacy. The chances are ten to one that the actual work has been done by cheap help, and you have no certain knowledge, at first hand, that the materials employed are not as cheap as the help.

Doctor Blumenschein presented a table covering in detail thirty-one galenicals that were produced in a prescription room with floor space of three feet by sixteen feet. Every item of labor, overhead, investment, etc., was computed and compared with the cost when bought from a manufacturing pharmaceutical house. The net saving effected was $81.05, a gross saving of 54 percent.

A report issued from the office of information of the U. S. Department of Agriculture, Bureau of Chemistry, covering the sanitary condition of bottled mineral and table waters, the sale of which is largely dependent upon the belief of the public in the purity of the product, shows that the tolerance established by the Public Health Service of the Treasury Department for such waters is none too rigid, and gives the Treasury Department standards for determining their character. This brought out quite an interesting discussion, in which it was shown that in the matter of purity the majority of the most highly lauded waters on the market are more or less of a delusion and a snare.

B. E. Pritchard, Secretary.

SAN FRANCISCO.

The San Francisco Branch of the American Pharmaceutical Association met on the evening of March 9, 1916, at 723 Pacific Building. President Lengfeld presided. The minutes of the February meeting were read and approved. During the report of pharmaceutical literature mention was made of the formula for Mandell's solution. There seem to be two preparations, the one containing menthol, iodine, potassium iodide in glycerin, the other has oil of peppermint in place of the menthol.

An abstract on drug fluctuations brought out the necessity of pharmacists testing their contemplated purchases. The case of aspirin was cited, and it was said that the average pharmacy with a moderate amount of apparatus could successfully carry out the required tests for purity. When this habit of testing drugs and chemicals has been acquired the work is more or less of a routine nature, and the pharmacist will feel amply repaid for his laboratory venture.

The demonstration of the filling of soft gelatine capsules was interesting. These capsules are suitable for most oils and strong alcoholic liquids, but unsuited for aqueous solutions. At the present time benzol and olive oil, creosote carbonate and olive oil and creosote and oil are so often prescribed. Mixture with oil is necessary to prevent perforation of the capsules, due to the solubility of benzol and creosote in glycerin. Even mercurial ointment is now ordered in soft capsules, so soft capsules are used for external mixtures as well as internal. In filling, a small air space should be left to preserve elasticity. President Lengfeld recommended to wipe off the necks with a cotton applicator dipped in hot water and, after sealing the filled capsules with the gelatine solution by means of a glass rod, to clean them off with a little chloroform, which he preferred to alcohol.

Further discussion centred on the growing tendency of physicians to specify Blaud's mass in powder form and to give from 1 to 8 grammes per day. Beringer's formula and one by Mr. H. A. B. Dunning given in the Dispensatory were mentioned. One of the members spoke of the French preparation of iron which corresponds to our tincture. It is prepared from the protochloride of iron and ammonium chloride, the resulting combination being dissolved in alcohol.

During the evening many queries were answered and it was suggested that a "Question Box" might prove instructive and at the same time add interest to the meetings.

The subject of Pharmacy and National Preparedness suggested by an editorial in the *Pharmaceutical Era* was thought to be an opportune topic for an evening's program. A committee was appointed to look into this matter and it is hoped that the Branch and its friends may anticipate a pleasant evening in the near future.

The Branch will meet again on Thursday evening, April 13, 1916, 723 Pacific Building.

CLARISSA M. ROEHR, Secretary.

CITY OF WASHINGTON.

The regular monthly meeting of the City of Washington Branch of the American Pharmaceutical Association was held March 29, at the National College of Pharmacy. The subject for consideration was a paper by Dr. W. W. Stockberger of the Bureau of Plant Industry, on "Some Practical Aspects of Drug Plant Growing."

Doctor Stockberger pointed out many features in connection with the growing of drug plants, not only from an experimental point of view, but from the practical aspects of the question. He discussed and presented statistics showing the amount of various drugs imported and compared same with crops grown in this country and the amount of acreage that would be required. He further pointed out that from the farmer's standpoint, the growing of drug plants would be a losing proposition, as the total amount required would be so small in comparison with other crops, like wheat and corn, that it would be a matter of impossibility to secure sufficient remuneration to justify the growing of same.

The proposition is one that is entirely up to the manufacturers, and therefore becomes what might be said to be a specialized branch of their particular business. The only other way that drug plant growing could be developed in this country at the present time would be along the basis that is at present followed by many farmers' wives in handling chickens and finding a market for poultry and eggs.

He further showed that an enormous amount of work had been done very successfully by Professor Kraemer and Professor Kremers, and that due credit should be given each of them.

Mr. Fuller, of the Bureau of Industrial Research, opened the discussion, and as he has had much practical experience, the Bureau having for some time conducted a drug farm, brought out many points in connection with the growing of plants for practical and profitable results. Mr. Fuller agreed with Doctor Stockberger fully and showed that the development on any very large scale generally would result in financial ruin, consequently he could not do otherwise than say that this subject was one that could only be conducted along the lines of a specialty by a few, and that he believed the manufacturers requiring these drugs were the proper ones to develop their culture.

The paper brought out considerable discussion, which was participated in by all present.

The committee on the bill pending before Congress, providing for prohibition in the District of Columbia and containing provisions whereby the obtaining of ethyl alcohol for any purpose was so hampered that pharmacists would have serious difficulty in obtaining their legitimate supplies, reported that the same had been satisfactorily amended along the lines suggested. As the committee had completed their work, they asked to be discharged, which on motion was agreed to.

S. L. HILTON, Secretary.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 17.

PHILADELPHIA, PA., January 29, 1916.

To the Members of the Council:

GENTLEMEN:

Motion No. 31. (*Election of Members; Applications Nos.* 33 *to* 55, *inclusive*) has received a majority of affirmative votes.

Motion No. 32, by Wilbur L. Scoville and seconded by Charles H. La Wall, relates to (Non-Publication of "Memoranda" on National Formulary in Council Letter No. 13).

The following has been received:

PHILADELPHIA, PA., January 28, 1916.

Council of the American Pharmaceutical Association:

GENTLEMEN:

The fourth edition of the National Formulary will be issued shortly and the Committee on Publication asks your attention to the subject of the use of the text of the National Formulary by periodicals, text-books and works of reference, and the conditions under which such use shall be permitted.

The subject is a very important one. At present the following resolution, passed by the Council on August 20, 1912, is in full force and effect:

"The publication of the *entire* book of the National Formulary with or without comments shall be prohibited, and the Council shall permit the *partial* reproduction of the text of the National Formulary by periodicals and text-books, such as cannot be used as a substitute for the National Formulary, under a compensation to the Association proportioned to the amount of text to be used, the amount to be determined in each case by the Council."

The Committee on Publication believes that this ruling is defective. It is a serious question whether the American Pharmaceutical Association can legally exact compensation for the *partial* reproduction of the text such as cannot be used as a substitute for the National Formulary (as the resolution specifies). The literature of pharmacy is replete with "partial reproductions" of the text for which no compensation has been given.

But while liberty should be given to *partially* use the text—in fact such use advertises the book—exceeding care should be exercised that this privilege is not abused and the property-rights of the American Pharmaceutical Association in the National Formulary are not injured.

The conditions of use of the text should be so stated that there can be no possibility of doubt or misunderstanding; furthermore, the rule adopted should be printed in bold type in some conspicuous portion of each edition of the book, preferably on the back of the title-page.

The Committee on Publication therefore asks the Council to reconsider its resolution of August 20, 1912, and submits the following resolution for consideration:

"The *partial reproduction* of the text of the National Formulary by periodicals, text-books and works of reference for the purpose of comment, *such as cannot be used as a substitute for the National Formulary*, will be permitted, provided the form of reproduction is first approved by the Committee on Publication of the American Pharmaceutical Association. The *substantial reproduction* of the text of the National Formulary in such a way as to permit of such reproduction being used in lieu of the National Formulary is prohibited, except after approval of the form and under an agreement for compensation to be determined in each particular case by the Committee on Publication and approved by the Council of the American Pharmaceutical Association."

Very truly yours,

J. W. ENGLAND,

Chairman of Committee on Publication.

Motion No. 33. (*Election of Members.*) You are requested to vote on the following applications for membership:

No. 56. William Heim, 1001 Janes Ave., Saginaw, Mich., rec. by H. M. Whelpley and J. W. Mackelden.

No. 57. Elmer S. Loyd, 1600 West End St., Nashville, Tenn., rec. by E. A. Ruddiman and J. T. McGill.

No. 58. Dean Burton Crawford, Pacific Ave. cor. Florida St., Atlantic City, N. J., rec. by Charles H. La Wall and M. R. La Wall.

No. 59. M. H. Breininger, care of Brooks Drug & Chemical Co., Waelder, Texas, rec. by G. D. Timmons and E. H. Wisner.

No. 60. Preston Dunn, Eskridge, Kansas, rec. by E. H. Wisner and G. D. Timmons.

No. 61. Herman Walter, 213 Second Ave., New York, N. Y., rec. by J. Leon Lascoff and Wm. B. Day.

No. 62. F. S. Frankfurter, 807 Courtlandt Ave., New York, N. Y., rec. by J. Leon Lascoff and Jacob Diner.

No. 63. Frederick Arthur Leslie, 115 West 68th St., New York, N. Y., rec. by H. V. Arny and Jeannot Hostmann.

No. 64. Joseph Goodman, Broadway and Baxter Ave., Elmhurst, L. I., N. Y., rec. by Leo Roon and Jeannot Hostmann.

No. 65. Edward Plaut, 120 William St., New York, N. Y., rec. by J. Leon Lascoff and Jeannot Hostmann.

No. 66. William Samuel Eichenberger, 1016 North Adams St., Peoria, Ill., rec. by W. B. Day and E. N. Gathercoal.

No. 67. Anthony Di Bella, 1431 Boscobel St., New York, N. Y., rec. by William H. Smith and L. J. Schlemiger.

No. 68. Walter Brooks, 2033 Atlantic Ave., Atlantic City, N. J., rec. by Charles H. La Wall and M. R. La Wall.

No. 69. Millard Erwin Cuskaden, Atlantic & Michigan Aves., Atlantic City, N. J., rec. by Charles H. La Wall and M. R. La Wall.

No. 70. Alfred Melchoir Letzerich, Harlingen, Texas, rec. by H. M. Whelpley and J. W. Mackelden.

No. 71. Clarence Herman Adams, 402 Upper Main St., Henderson, Kentucky, rec. by John T. Elam and Dr. H. M. Whelpley.

No. 72. Eugene A. Dunbar, U. S. Naval Station, Guantanamo Bay, Cuba, rec. by Wm. B. Day and J. F. Rupert.

J. W. England,
Secretary of the Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 18.

Philadelphia, Pa., February 25, 1916.

To the Members of the Council:

Gentlemen:

Motions No. 32 (Non-Publication of Memoranda on National Formulary in Council Letter No. 13) and *No. 33 (Election of Members; Applications Nos. 56 to 72 inclusive)* have each received a majority of affirmative votes.

Albert Schneider has resigned as Council Representative from the San Francisco Branch and, at the meeting of the Branch held February 10, 1916, Miss Clarissa M. Roehr was elected to succeed him.

Motion No. 34 (Adoption of Proposed Resolution on Use of Text of National Formulary). Moved by S. L. Hilton, seconded by C. A. Mayo, that the report of the Committee on Publication in Council Letter No. 17 be received, the resolution referred to reconsidered, and the proposed resolution adopted.

Otto Raubenheimer, Chairman of the Committee on Recipe Book, states that no appropriation was made for the Committee on Recipe Book in the Budget of Appropriations for 1916 and asks for an appropriation of fifty dollars for binders, perforated paper, etc., for the Committee.

Motion No. 35 (Appropriation to Committee on Recipe Book). Moved by Dr. F. E. Stewart, seconded by C. H. La Wall, that an appropriation of fifty dollars be made to the Committee on Recipe Book for the purchase of binders, perforated paper, etc.

The above appropriation is approved by the Committee on Finance.

Motion No. 36 (Time of Sixty-fourth Annual Meeting). Moved by Local Secretary Charles Holzhauer, seconded by J. W. England, that the Sixty-fourth Annual Meeting of the American Pharmaceutical Association be held during the week beginning Monday, September 4, 1916.

Monday, September 4, will be Labor Day, and the thought is to have the first Council meeting on Monday evening, the first general session on Tuesday at 11 A.M., and the final general session on Friday afternoon.

Headquarters will be the Hotel Chalfonte.

The Committee on Program submits the following tentative program for the Sixty-fourth Annual Meeting of the American Pharmaceutical Association, to be held at Atlantic City, N. J., Sept. 4–8 inclusive, 1916.

TENTATIVE PROGRAM.

Monday, September 4 (Labor Day):

7.30 P.M. Meeting of the Council.

Tuesday, September 5:

11.00 A.M. First General Session.
Meeting of Committee on Nominations.
Meeting of Committee on Resolutions.

2.00 P.M. Section on Education and Legislation.
Commercial Section.
Women's Section.

7.30 P.M. Meeting of the Council.
House of Delegates.

9.30 P.M. President's Reception.

Wednesday, September 6:

9.30 A.M. Second General Session.

12.30 P.M. Luncheon of College Alumni.

2.00 P.M. Section on Education and Legislation.
Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).
Commercial Section.

7.30 P.M. Meeting of the Council.
Joint Session of Section on Education and Legislation, the A. C. P. F. and the N. A. B. P.
House of Delegates.

Thursday, September 7:

9.30 A.M. Scientific Section.
Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).

2.00 P.M. Scientific Section.
Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).
Women's Section.

7.30 P.M. Meeting of the Council (Reorganization).
House of Delegates.

Friday, September 8:

9.30 A.M. Meeting of the Council.
Historical Section.
Scientific Section.

2.00 P.M. Final General Session.

Saturday, September 9:

Sightseeing.

Do you approve the tentative program as above submitted? This will be regarded as *Motion No. 37* (*Approval of Tentative Program for Sixty-fourth Annual Meeting*).

Motion No. 38 (*Election of Members*).

You are requested to vote on the following applications for membership:

No. 73. Moses Mordechai Albert, B.A., B.C., M.Phm., Buab-Ed-Driss (Albert's Pharmacy), Beirut, Syria, Turkey, rec. by James A. Patch and T. Ladakis.

No. 74. Miss Rosa T. Lagomasino, 237 Twenty-third St., Habana, Vedado, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 75. Chester Orvis Kimball, U. S. Navy, U. S. S. Cummings, New York, N. Y., rec. by Wm. B. Day and J. F. Rupert.

No. 76. Fred C. Jones, 415–16 Temple Court Bldg., Denver, Col., rec. by W. T. Hover and Milton P. Givens, Jr.

No. 77. Henry Topp, 1313 Washington St., Portsmouth, Va., rec. by Wm. B. Day and J. F. Rupert.

No. 78. Frank G. Serodino, 1511 Fern St., San Diego, Cal., rec. by Edward Strahlman and H. M. Whelpley.

No. 79. J. N. Judy, M.D., Petersburg, West Virginia, rec. by Chas. H. Rogers and Wm. B. Day.

No. 80. Felipe Pazos Boada, Campanario No. 70 (bajos), Habana, Cuba, rec. by Jose P. Alacan and Jose Guillermo Diaz.

No. 81. Clarence Frederick Booth, 52 Woodward Avenue, Buffalo, N. Y., rec. by A. M. Roehrig and Geo. Reimann.

No. 82. Francis Warner Ekstrand, Salina, Kansas, rec. by Wm. B. Day and L. D. Havenhill.

No. 83. Wilmer H. Schulze, Phar.D., 2245 Eastern Ave., Baltimore, Md., rec. by Louis Schulze and Daniel Base.

No. 84. Ivor Griffith, 4615 A Street, Wyoming, Phila., Pa., rec. by R. H. Lackey and Charles H. La Wall.

No. 85. William Fletcher Murdy, D.D.S., Hospital Steward, U. S. N., Dispensary, Navy Yard, Norfolk, Va., rec. by W. B. Day and J. F. Rupert.

No. 86. Rudolph Charles Payler, U. S. S. "*Hartford*," Navy Yard, Charleston, South Carolina, rec. by Wm. B. Day and J. F. Rupert.

No. 87. William E. Britt, Juneau, Alaska, rec. by C. Osseward and F. E. Ryus.

No. 88. Frederick Ludwig, M.D., Hospital Steward, U. S. N., U. S. N. Training Station, Great Lakes, Ill., rec. by W. B. Day and J. W. England.

No. 89. Lloyd Bruce Finley, care of Bureau Medicine and Surgery, Navy Department, Washington, D. C., rec. by Wm. B. Day and J. F. Rupert.

No. 90. Gustave F. Peterson, 216 Higgins Ave., Missoula, Montana, rec. by Charles E. Mollet and Alexander F. Peterson.

No. 91. Albert Raymond Collins, 333 University Ave., Missoula, Montana, rec. by Charles E. Mollet and Alexander F. Peterson.

No. 92. Wm. G. Peckham, 110 W. 37th St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 93. Dr. Agustin Ortiz, Havana, Cuba, rec. by Jose P. Alacan and Jose Guillermo Diaz.

No. 94. Charles Joseph Hoehn, 271 Norfolk St., Newark, N. J., rec. by Frank C. Stutzlen and Charles Holzhauer.

No. 95. John J. Chwatal, 2756 N. 22d St., Chicago, Ill., rec. by Chas. C. Orr and Hugh Craig.

No. 96. Charles Howard Bowersox, 426 The Rose Building, Cleveland, Ohio, rec. by Eugene R. Selzer and Wm. B. Day.

No. 97. Frederick Jefferson Cermak, 18501 Detroit Ave., Cleveland (Lakewood), Ohio, rec. by Eugene R. Selzer and Wm. B. Day.

No. 98. Percy A. Chedister, 1275 Curtis St., Denver, Col., rec. by F. W. Nitardy and W. A. Hover.

No. 99. George W. Graves, Mansfield, Arkansas, rec. by Wm. B. Day and J. W. England.

No. 100. Lester Elmer Bote, United States Ship Beale, Norfolk, Va., rec. by Wm. B. Day and J. F. Rupert.

J. W. England,
Secretary of the Council.

415 N. 33rd St., Philadelphia, Pa.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

VARYING VALUATIONS ARE PLACED ON ASSOCIATIONS.

A photograph of an individual may appear to you as having a very striking resemblance to someone well known to you; show the picture to another person, quite as intimately acquainted with these individuals as you are, and he fails to see the close resemblance observed by you,—the point of contact is different.

So it is with the views and opinions relative to associations; the work is differently judged, the perspective and prospective do not take in the same objects, the value is not calculated by the same standard. The purpose of associations is to benefit many.

A. PH. A. BRANCHES.

We are pleased to learn from Dr. J. G. Diaz and Prof. J. P. Alacan that it is contemplated to form a Branch of the American Pharmaceutical Association in Havana.

There are now thirty-four members in Cuba, most of whom reside in Havana, and therefore there should be no great difficulty in the consummation, especially under the direction of such enthusiastic members.

The Association hopes the School of Pharmacy of the University of Havana will be represented and a large delegation present at the Atlantic City meeting. The ties that bind Pan-America are becoming closer in every activity.

The American Pharmaceutical Association welcomes the membership of all American pharmacists—the term applied in its broadest meaning. It is hoped that Canadian pharmacists will be represented, and only recently Prof. Alexander Benjamin Moore of Montreal indicated that he would be present. There are so many ways in which pharmacists throughout America can be helpful in establishing conditions that will not be upset by events in Europe.

The Committee on Organization of Local Branches is busy with plans for establishing other Branches and preparing suggestions for programs of the meetings.

The Montana Branch is now assured, evidencing again that where there is a will, a way to accomplish will be found. The Branches should become more potent factors, not only in doing pharmaceutical work, but in strengthening the Association through accession of membership.

AUSTRALASIAN PHARMACISTS' CORPS.

Seemingly, difficulties are encountered in securing advanced pay and standing for pharmacists in government service of other countries than the United States.

The *Australasian Journal of Pharmacy* reports progress in the adoption of the following:

(1) Appointment of four Lieut.-Quartermasters (Pharmacists) at the Base Depots of medical stores.

(2) Appointment of a Senior Pharmacist with honorary rank of Captain in each State.

(3) Recognition of the Pharmacists' Corps Reserve, which hitherto had not been regarded with friendly eyes.

(4) Advancement in rank in the case of several pharmacists and consideration promised in reference to others.

(5) Abolition of the objectionable terms "Army Compounder" and "Army Dispenser."

LOUIS PASTEUR "FETE DAY."

On February 23, the savants of France gathered in the halls of the Sarbonne apotheosizing the pacific conquests of M. Louis Pasteur, who made humanity immune from one of the deadliest afflictions. Professor Charles Richet commemorated the event last year in verses glorifying the illustrious benefactor of humanity.

While the Institute of France had adopted resolutions to bestow prizes only to members who had fallen in battle or the wounded, the poem gained their approval. The award amounted to two thousand dollars, which was at once given over by Doctor Richet to the families of the scientist soldiery fallen in battle, inhabiting the countryside of the Vosges where Pasteur was born.

So Pasteur still lives; also every clinic in the world teaches the therapeutic mysteries solved by him. The discoveries of French scientists, made in the laboratories of the republic, the system, the operations, are given with open hand to the whole world, the discoverer disdaining other rewards than the benevolence wrought and the appreciation of his colleagues in every land. From the days of Lavoisier and Cuvier to Pasteur and Berthelot, the assiduity and fastidiousness of scientists have preserved the intellectual from the sordid avarice which usually associate inventions with monopoly.

OHIO MANUFACTURER DONATES A $3,000,000 FARM TO WESTERN RESERVE UNIVERSITY.

The encouragement of schools and associations that have sustained pharmacy and are engaged in developing its science and art is not only desirable, but essential, for modern conditions. The income of schools engaged in teaching pharmacy will become more and more inadequate to meet the increasing expenses and the same may be said of associations earnestly striving for the betterment of pharmacy. This same condition obtains in other educational activities, for which, however, assistance seems to be more readily forthcoming than for those of pharmacy.

We congratulate Western Reserve University and realize the value of this donation; knowledge of agriculture is essential for prosperity in this country. May it awaken others to contribute, even if in a more moderate way, for other departments of this university. All branches of science are closely linked, and, however remote a relation, the promotion of one department helps the others.

FIXING THE RETAIL PRICE.

A correspondent of the New York Times is quite right when he asserts that when an individual has purchased an article and paid for it he has a right to do as he pleases with it, and contends further, that this may still be said without making it true nor making it right if done. To buy "an article" is one thing, but to buy a large quantity of a standard article and offer it for sale at less than the standard and fair price is quite another thing. The individual who seeks to beguile the public to his place of business by selling standard goods at less than his competitor and making an average profit from his customers by selling them unstandardized goods at exorbitant profits has not the right to do as he pleases with goods he has bought and paid for. On the contrary, the manufacturer has a natural right to protect his business against such practices, for his business is certainly injured as a consequence.

The Stevens-Ayre bill simply provides that a manufacturer may, if he so elects, standardize the selling prices of his products to prevent demoralization of his business. It does not provide for "organized protection" nor will it permit manufacturers to "get together" for the purpose of fixing prices.

The courts have held that contracts between manufacturers and dealers are not binding, and it is sought to legalize proper contracts by the passage of this important measure.

If "nobody questions the right of a manufacturer to put any price he chooses upon his wares," then nobody ought to oppose the passage of a bill which grants him this right and does no more.

BOOK NOTICES

New and Non-official Remedies, 1916, Containing Descriptions of the Articles Which Have Been Accepted by the Council on Pharmacy and Chemistry of the American Medical Association Prior to January 1, 1916. Chicago: American Medical Association, 535 North Dearborn Street.

As outlined in the preface to the book this volume contains a list of the medicinal substances which, having been examined by the Council on Pharmacy and Chemistry of the American Medical Association prior to January 1, 1916, and appearing to comply with the rules of the Council, were accepted for inclusion in New and Non-official Remedies. The acceptance of the articles included in the book was based in part on evidence supplied by the manufacturer or his agent, and in part on investigations made by or under the direction of the Council. Criticisms and corrections to aid in the annual revision of the matter are requested.

It is also emphasized that acceptance of an article does not necessarily mean recommendation, but simply that, so far as known, such accepted article complies with the rules adopted by the Council on Pharmacy and Chemistry.

The present edition includes a number of additions and changes. The omissions from the previous edition are, with few exceptions, recorded in the reprint of the Proceedings of the Council on Pharmacy and Chemistry with the reasons for this action. In connection with the several articles included in the present edition of N. N. R., considerable revision has been made in the descriptions of the physical and chemical properties and in the tests for identity and purity of the various substances described. The definitions of the substances or descriptions of the actions, uses and dosage have been modified in connection with a number of more or less widely used and important substances like alypin, salvarsan, pituitary liquid, radium and collargol. During the year 1916, descriptions of additional medicinal substances accepted by the Council will be published in the JOURNAL and will be issued in the form of supplements, which are sent to all who purchase the book.

M. I. W.

Annual Reprint of the Reports of the Council on Pharmacy and Chemistry of the American Medical Association For 1915 With the Comments That Have Appeared in the Journal. Chicago, 1916: Press of the American Medical Association, 535 North Dearborn Street.

The annual reprint of the reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1916 constitutes an 8vo book of 185 pages. This book, in addition to the material as it appeared in the Journal, includes much of the more strictly scientific parts of the reports which from lack of space or because of the technical nature have been only abstracted or were entirely omitted from the reports as published.

The present volume contains detailed reports on a number of complex proprietary preparations, including a rather comprehensive study of lactopeptin and elixir of lactopeptin; also a report on proprietary digitalis preparations.

The detailed information regarding the examination of the several preparations reported on should be of interest to pharmacists generally, and a careful perusal of this reprint of the reports of the Council will prove to be not alone interesting but also stimulating.

M. I. W.

The Propaganda for Reform in Proprietary Medicines. Ninth Edition. Reprinted from the Journal of the American Medical Association.

The present volume of "The Propaganda for Reform" has been much elaborated and enlarged. It contains a total of 512 pages, or an increase of 137 pages over the edition immediately preceding it. The material generally is arranged in parts, headed: (1) Council Reports, (2) Laboratory Contributions, (3) Contributions from the Journal: Nostrums, and (4) Contributions from the Journal: Miscellany. In general, the rule previously established has been followed to confine the contents of "The Propaganda for Reform" to material that is of professional interest. Physicians and pharmacists who are desirous of obtaining in convenient form the matter dealing with "patent medicines" should consult the book "Nostrums and Quackery," a 700-page book published by the American Medical Association.

The ninth edition of "The Propaganda for Reform" contains a number of new articles, greatly increasing the size of the book. It also contains one novel feature which greatly enhances its value. The index includes references not only to articles in the book, but also to matter on proprietaries not accepted by the Council on Pharmacy and Chemistry which appeared in the Journal of the American Medical Association and elsewhere. This index makes of this edition of "The Propaganda for Reform" a very full work of reference on proprietaries which are undeserving of recognition. It should be understood, however, that not all articles indexed are condemned; some are merely discussed and compared.

M. I. W.

OBITUARY

MISS ALICE HENKEL.

Miss Alice Henkel, Assistant in Economic and Systematic Botany, Bureau of Plant Industry, Department of Agriculture, at Washington, died at her home in Chevy Chase, Maryland, March 8, 1916. Miss Henkel made a specialty of medical botany and has published several valuable bulletins. Farmers'

Bulletin No. 188, Weeds Used in Medicine; Bul. No. 51, part 6, Goldenseal. Bul. No. 89, Wild Medicinal Plants of the United States; Bul. 90, Peppermint; Bul. 107, American Root Drugs; Cir. 6, Cultivation and Handling of Goldenseal; Bul. 139, American Medicinal Barks; Bul. 219, American Leaves and Herbs; Bul. 26, American Medicinal Flowers, Fruits, and Seeds, written by Miss Henkel, have proven to be among the most popular issued by the Department. Miss Henkel's work is well known to thousands of druggists, students and professors of pharmacy, and the results of her many original investigations are considered authoritative in the sphere of applied economic botany. Miss Henkel has been a member of the American Pharmaceutical Association since 1902 and has been very active on the membership committee.

MISS ALICE HENKEL

MARY AGNES STOUGHTON.

Mary Agnes, the daughter of John and Maria White, was born in Hartford, Conn., on October 18, 1866. She passed her early years and received her education in that city, and on April 8, 1891, married Dwight G. Stoughton, a druggist of Hartford and a prominent member of the Connecticut Pharmaceutical Association, of which he had been President in 1889.

Mr. Stoughton at this time owned and operated several drug stores, but, in the course of a few years having developed a heart difficulty which rendered his tenure of life uncertain, Mrs. Stoughton determined to study pharmacy, and entered one of her husband's stores for this purpose in 1896, in due time becoming a licensed pharmacist and so able to assist in the management and conduct of the business.

In 1904 she started a store of her own, and when Mr. Stoughton died in 1909, after disposing of one store, she conducted the others most successfully under the style of D. G. Stoughton Co., until her decease.

Mrs. Stoughton, who had attended the meetings of the Connecticut Pharmaceutical Association in her husband's company during his lifetime, joined the Association herself in 1903 and thereafter was a regular attendant at its meetings, where she became well known and highly respected by members of the trade throughout the State, and her business ability was recognized in her home city by her election as Secretary-Treasurer of the Hartford Retail Druggists' Association and as Chairman of the Drug Section of the Hartford Chamber of Commerce. She joined the American Pharmaceutical Association in 1913.

MRS. DWIGHT G. STOUGHTON

Mrs. Stoughton's home life was beautiful in the extreme, devoted to her husband and to her family, which she raised and educated in an exemplary manner, her sound convictions and broad charity commended her to the respectful esteem of a wide circle. In business she conducted the affairs of D. G. Stoughton Co. with great ability; she was one of the few noted women of the country who have successfully engaged in the retail drug business and was the only woman member of the Connecticut Pharmaceutical Association.

When attending the last meeting of the State Association, Mrs. Stoughton appeared to be in robust health and had apparently many years of usefulness before her, but in the midst of her activities and with but few premonitory symptoms, she died of apoplexy on January 22, 1916.

Mrs. Stoughton is survived by her mother, brother and two children, a daughter, Amanda Louise Stoughton, and a son, Dwight H. Stoughton, who, after studying pharmacy in one of his mother's stores and becoming a licentiate in pharmacy, is now studying medicine at McGill University, Montreal, Canada.

Mrs. Stoughton belonged to the Roman Catholic Communion and was a member of the Church of Our Lady of Sorrows, Hartford, where the funeral services were conducted and a solemn mass of requiem celebrated. The clerks from her stores were the bearers at the funeral, which was attended by many friends and the society of the "Ladies of Charity" to which she had belonged. Numerous representatives of the State and of the Hartford Retail Druggists' Associations also attended the services to honor the memory of their late highly-esteemed associate and friend.

Interment was in the family plot at Cedar Hill Cemetery. T. F. M.

CHARLES HENRY McCONNELL.

Charles H. McConnell, president of the Economical Drug Company, Chicago, Ill., and formerly chief of staff of the Grand Army of the Republic, died on March 17 at his home, 4417 Ellis Avenue, Chicago. Funeral services were held on the evening of March 19 in Boydston's Chapel, under the auspices of George H. Thomas Post, No. 5, G. A. R. In accordance with Mr. McConnell's wish the body was cremated.

Mr. McConnell was born in Dublin, Ireland, October 12, 1841, and at an early age came to the United States with his brother. He was educated in Detroit, where he was afterward employed by the Detroit Tribune, but when the Civil War began he enlisted in the Twenty-fourth Michigan Infantry. At the close of the war he established a printing company in Chicago and built up a fortune, but in the early 80's lost his money in theatrical ventures. He went to Brooklyn, N. Y., as a real estate clerk, and while there conceived the idea of a cut-rate drug store. Returning to Chicago he started the first cut-rate drug business, in 1892, in Clark Street. His store failed during the panic of 1893, when Mr. McConnell took over the stock and moved it to State Street as the Economical Drug Company, and in four years he liquidated all indebtedness.

Mr. McConnell joined the American Pharmaceutical Association in 1899. His widow and one daughter, Mrs. Cora E. Wright of Chicago, survive him.

MRS. WM. B. DAY.

Bertha Pettit Quinn was born in Ohio, January 27, 1872. Her parents were Wm. B. Quinn and Mary E. Quinn. The family moved to Pittsburgh soon afterward, and in 1889 moved to Chicago, where they have since resided.

Miss Quinn was educated in the common schools at Pittsburgh and the South Division High School, Chicago. She was married to Wm. B. Day, June 10, 1895. Two children were born to them, Helen and Charlotte, who are now nineteen and seventeen years of age, respectively.

Mrs. Day was a great lover of home life but enjoyed meeting with friends at the annual conventions of the Illinois Pharmaceutical Association and the American Pharmaceutical Association. She had attended most of the Illinois Pharmaceutical Association conventions, beginning with 1898, and had been a regular attendant at the American Pharmaceutical Association Meetings, beginning with the Boston meeting of 1911. She was elected Treasurer of the Women's Section at San Francisco, 1916.

Mrs. Day had been sick for eight months and passed away on the morning of Friday, March 24. The funeral services, which were private, were held on Sunday, March 26. Interment was in Mt. Hope Cemetery, Chicago.

The Association sympathizes with General Secretary Day and family in their loss.

RESOLUTIONS OF WOMEN'S SECTION A. PH. A.

WHEREAS, It has pleased our Heavenly Father to call to her long last Home, the immortal spirit of Mrs. Bertha P. Day; and

WHEREAS, In answer to that call the home of Professor William Baker Day has surrendered to His loving care a much cherished and a most devoted wife and a loving mother and the world has been deprived of an unusually beautiful character; and

WHEREAS, Mrs. Day was a loved and valued member of the Women's Section and Professor Day has long been associated with the American Pharmaceutical Association and has ever been deeply interested in all pharmaceutical affairs; therefore be it

Resolved, That the Women's Section of the American Pharmaceutical Association expresses deepest sympathy for Professor Day and daughters; and be it further

Resolved, That these resolutions be spread upon the records of the Women's Section and that a copy be presented to the family.

Resolutions adopted by the Massachusetts College of Pharmacy at the regular quarterly meeting, held on March 6, 1916.

The Massachusetts College of Pharmacy has lost one of its oldest and best beloved members in the death of Samuel A. D. Sheppard, who passed away at Newton Centre on November 28, 1915.

Mr. Sheppard was a man of sterling character, excellent judgment and wise counsel, and he possessed the professional spirit of pharmacy to an exceptional degree. His influence was great, and it was always exerted for the attainment of the right.

This College hereby records its appreciation of Mr. Sheppard's great services, and its sense of loss of a true and devoted friend, whose achievements will remain as a lasting monument to his memory.

(Signed) JOHN G. GODDING, Chairman.

HENRY A. ESTABROOK,

IRVING P. GAMMON.

SOCIETIES AND COLLEGES

ANNUAL MEETINGS.

The 64th Annual Meeting of the American Pharmaceutical Association will be held at Atlantic City, N. J., from September 5 to 9, 1916. The first Council session will be held on Monday, September 4 (Labor Day), at 7.30 P.M., and the first general session on Tuesday, September 5, at 11 A.M., and the final general session on Friday, September 8, at 2 P.M.

The Headquarters of the Association will be at the Hotel Chalfonte.

A full, detailed program will be published later.

The American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy have decided to meet in Philadelphia on Thursday, August 31, Friday, September 1, and Saturday, September 2.

The meetings of the Board will be held on Thursday and Friday, and those of the Faculties on Friday, while on Saturday there will be a joint session of the Board and Faculties. Additional sessions may be held during the evenings or on Monday, if necessary. The A. C. P. F. will meet in the rooms of the Philadelphia Drug Exchange, and the N. A. B. P. in the rooms of the Philadelphia Board of Trade or other rooms of the Philadelphia Bourse Building. After adjournment, the members of these bodies will go to Atlantic City to attend the sessions of the American Pharmaceutical Association the following week.

AMERICAN CHEMICAL SOCIETY: DIVISION OF PHARMACEUTICAL CHEMISTRY.

The Spring Meeting of the American Chemical Society will be held at the University of Illinois, Urbana, Illinois, April 18 to 21, 1916. The Division of Pharmaceutical Chemistry will hold three meetings, on the 19th and 20th.

The secretary received an encouraging response to his letter of last November, and is expecting a good program. A number of members have offered papers on the Chemistry of the U.S.P. IX. If a sufficient number of papers on this subject are received we will devote an entire session to them.

G. D. BEAL, Secretary.

N. W. D. A. CONVENTION.

The N. W. D. A. Committee on Arrangements and Entertainment, which has been indefatigable in its efforts to make the 1916 convention an exceptionally enjoyable one, announces that, besides the entertainments which it has planned for the evenings of Monday, Tuesday, Wednesday and Thursday, October 2, 3, 4 and 5, including the president's reception, which will be followed by a ball and supper in the Belvedere Hotel, on the evening of the first day, the banquet in that hotel, on Thursday evening, October 5; two informal events at the Emerson Hotel, one for Tuesday evening, October 3, and the other for Wednesday evening, October 4; there are also to be afternoon entertainments for the first four days of the convention, concluding with a boat-ride down the Patapsco River and Chesapeake Bay to Annapolis and return, on the afternoon of Friday, October 6.

In view of the heavy demands for accommodations which are already being made upon the two convention hotels, the Belvedere and Emerson, all those planning to attend the meeting are again requested to aid the committee and avoid disappointment by communicating immediately with W. A. Sailer, care of Sharp & Dohme, relative to reservations, stating the kind of room or rooms they desire and whether they expect to arrive Sunday afternoon, October 1, or Monday morning, October 2.

UNIVERSITY OF WASHINGTON COLLEGE OF PHARMACY.

The committee in charge of the plans for the permanent improvement of the University Campus has recognized the need of the Garden of Medicinal Plants of the College of Pharmacy by assigning to its use a tract of four acres. This is very conveniently located, extending for some distance on both sides of the boulevard in the south part of the campus. It includes soil of several different types. It has also been promised that as soon as Lake Washington is lowered by the opening of the Government Canal, thereby extending the area of the Campus, there is to become available for the Drug Garden a tract of low, black soil on the lake shore.

The lectures on Commercial Pharmacy by Cornelius Osseward are being very much enjoyed by the sophomore class. Mr. Osseward has devoted special attention to familiarizing the class with the provisions of the Federal Anti-Narcotic Law.

On March 1 a party of forty students under the direction of Prof. A. W. Linton made the first of a series of observation trips. The first visit was to the City Hospital, where Mr. B. A. Brown, who is the hospital pharmacist and an alumnus of the College, served as the guide through the various departments, including the splendidly equipped X-ray laboratory. At the branch house of the H. K. Mulford and Co., the party heard a very fine lecture on biologics by Mr. Friend. The lecture was accompanied by moving pictures illustrating the various processes in the manufacture of serums and vaccines as carried out in the laboratories at Glenolden, Pa. A visit was then paid to the Seattle branch of Parke Davis and Co., where every opportunity was given to inspect the large stock carried at this point to serve the needs of the Northwest.

The following graduates of the College of Pharmacy are at present enrolled in colleges of medicine: Ben. F. Eager at Northwestern, R. R. Hannon at Johns Hopkins, Milton Veldee at Harvard, Wm. Ludwig at the University of Michigan, Dennis Sivart and Ralph Lieser at the College of Medicine of the University of Oregon.

Mr. Milton H. Veldee, Ph.C.'11, B.S.'13, was recently granted a scholarship in the College of Medicine at Harvard University. Since leaving the University of Washington, Mr. Veldee has been employed in the Federal Laboratories as bacteriologist at Cincinnati, Ohio, and Louisville, Ky.

PHILADELPHIA COLLEGE OF PHARMACY.

On Thursday, February 16, the Senior Class of the Philadelphia College of Pharmacy, together with several members of the Faculty and a number of invited guests, including Editor Eberle of the JOURNAL, were the guests of the firm of Whitall Tatum Co., on an all day excursion to the firm's Millville, N. J., plant.

The party, numbering about 150, left Philadelphia, *via* the Market Street ferries at 9 A.M. Upon their arrival at Millville they were divided into two parties, and each party was subdivided into smaller groups or squads of about 20 each, in order to facilitate the inspection. The various squads were conducted by experienced guides through every department of the works. The enumeration of the departments will give some idea of the educational value of the trip, also of the completeness of the establishment:

1. Clay grinding and kneading and pottery plant for making the pots and furnaces used in melting the glass.
2. Foundry and machine shop where the moulds and name plates are made.
3. Mixing department where the various ingredients are assembled and mixed for making green, amber, flint and opal glass and the special glass for chemical ware.
4. The blowing of green glassware, including bottles of all sizes, and carboys.
5. The blowing of flint glassware, including bottles and also graduates, chemical ware and glass tubing.
6. The homœopathic vial and special apparatus department, where syringes, nasal douches, etc., are made.
7. The stopper grinding department.
8. The calibrating department, where expert operators, mostly girls, calibrate and adjust hydrometers, graduates, burettes, etc.
9. The special grinding department, where numerals are placed on calibrated ware and where patterns are ground on fancy show bottles.
10. The packing departments.
11. The display rooms where samples of every article made by the firm were on exhibition.

There was an intermission at 12.30 and the party was escorted to the local gymnasium and entertainment hall, where the ladies of the Millville Presbyterian Church had prepared a bountiful and appetizing luncheon.

The party returned to Philadelphia about 5.30 P.M. and unanimously agreed that it had been one of the most pleasant as well as one of the most profitable days ever spent.

ELECTION OF OFFICERS, PHILADELPHIA COLLEGE OF PHARMACY.

The following officers of the Philadelphia College of Pharmacy were elected at the annual meeting, March 27: President, Howard B. French; first vice-president, Dr. Richard V. Mattison; second vice-president, Joseph L. Lemberger; treasurer, Warren H. Poley; corresponding secretary, Dr. Adolph W. Miller; recording secretary, Dr. C. A. Weidemann; curator, Joseph W. England; editor, Henry Kraemer; librarian, Katharine E. Nagle; trustees to serve for three years, Samuel P. Sadtler, William L. Cliffe and H. K. Mulford. After many years of service R. M. Shoemaker declined re-election as treasurer, but agreed to act as a trustee to fill the unexpired term of Warren H. Poley, who was chosen treasurer.

U. OF P. MEDICAL SCHOOL TO LIMIT CLASS TO 100.

Beginning with next year the Medical School of the University of Pennsylvania will limit all first-year classes to a hundred students. This step was decided upon at the last meeting of the Board of Trustees. It marks the first time in the history of any American medical college that a permanent limitation has been placed on the number of students to be enrolled.

Dean Pepper defines the step as an attempt not only to raise the standard of the University Medical School, but also to permit more thorough instruction.

When the regulation goes into effect next year it will cut down the size of the Freshman class more than half. All applicants for admission to the Medical School will be compelled to hand in their names by July 1, and to sign a pledge agreeing to enter the school the following September. A waiting list will be maintained.

COLLEGE OF PHARMACY, STATE UNIVERSITY OF IOWA, IOWA CITY, IOWA.

The Johnson County Druggists' Association at a recent meeting elected E. R. Utterback, '12, president. Johnson County has thirty-five druggists; twenty-one in the retail business, three in manufacturing industries, six teachers, the other five connected in some way with pharmaceutical work. Considering the fact that the most of the towns are small, this is a good representation.

The pharmacists of Johnson County have plans well under way for the meeting in Iowa City of the State Pharmaceutical Association, June 20, 21, 22. Iowa has one of the largest State Associations in the country and a large attendance is expected this year, since this is the first meeting in the University city. It is the intention of the local people to have a program of such a nature that the visitors may take many valuable ideas home with them as well as the feeling that they were royally entertained. Professor R. A. Kuever is local secretary.

The Mortar and Pestle Society met on the evening of March 22. Professor Kuever, Professor Cooper and Dr. Chase furnished the program, after which the members enjoyed a social hour, and a spread given by Professors Cooper, Kuever and Doden.

Beginning with the next school year students in the College will be required to take military drill, first year students taking the regular drill required of liberal arts students, but second year students having the first semester only, and that in hospital corps work, on the belief that a pharmacist called to active service would naturally be detailed there.

BULLETIN NO. 3, PUBLICITY COMMITTEE OF THE PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

In Bulletin No. 1, sent out by the Publicity Committee of the Pennsylvania Pharmaceutical Association early in January, the enormous rise in price of a small number of drugs was given in tabulated form. Some of these showed increases as high as 2000 percent. Experts now say that if the war continues for another year the present high prices will look like bargain counter rates, for many drugs and chemicals will be absolutely unobtainable by that time and their places will have to be filled by others possessing identical or similar properties. Many chemical and textile industries are almost crippled by the high prices and scarcity of materials.

There are some interesting underlying reasons for this state of affairs. All of the vegetable and animal oils have risen enormously because of the fact that glycerin can be made from them and the glycerin then converted into the explosive nitroglycerin or dynamite. This is true especially of cod-liver oil, which is being taken by Germany from Norwegian sources of supply. Castor oil comes from a seed principally grown in India, and Great Britain, who controls the trade, has placed an embargo upon the oil, it is said, because it is one of the few oils suitable for lubricating aeroplanes.

The compounds of mercury, among which are calomel, corrosive sublimate, gray powder, blue mass, blue ointment, etc., are scarce because mercury is used in making the compounds known as fulminates, indispensable for the caps used for exploding cartridges and shells.

The potash salts are high and scarce because the world's largest available supply of easily worked material containing this valuable alkali is in Germany.

Coal-tar dyestuffs are rapidly becoming unobtainable on account of the strict blockade which England has enforced since March, 1915, against their importation from Germany.

All vegetable drugs of Italian, Turkish, Serbian and Bulgarian origin have joined the list of skyscrapers during the past few months, for obvious reasons.

Quinine still maintains its abnormally high price on account of the high figures obtained at the recent auction sale of cinchona bark, from which quinine is made, held at Amsterdam, the world's centre for this drug.

Glycerin is enormously high also on account of its use in the manufacture of nitroglycerin.

Paris green and other insecticides are high in price on account of the scarcity of the crude products from which they are made. Licorice root and stick licorice have risen to unheard of figures and are still going up, as the Spanish and Italian sources of supply are exhausted and the Russian supply is not available because of the closing of the Dardanelles.

What is needed more than anything else at the present time and what the members of the Pennsylvania Pharmaceutical Association will work for at the coming meeting at Reading, is a proper and intelligent revision of the patent laws and the tariff so as to make it possible for our infant chemical industries to gain a foothold without competition from abroad when the war ends. We have the brains and the capital in this country, but no financial interests are going to put money into a project which is unjustly treated by patent laws and tariff regulations, as is almost everything pertaining to the manufacture of medicines or chemicals.

PITTSBURGH COLLEGE OF PHARMACY.

Monday, March 26, marked the silver anniversary of Dr. Julius A. Koch as dean of the Pittsburgh College of Pharmacy. In commemoration, the members of the faculty and the Board of Directors tendered a testimonial dinner in his honor, on the evening of March 27, at the Pittsburgh Athletic Club. The dinner was attended by every member of the faculty and nearly all of the directors.

The gathering was honored by the presence of Dr. John A. Brashear, a former dean of the University. Dr. J. H. Beal, Emeritus Professor of Pharmacy, was unable to come, but sent a letter expressing his regrets and extending congratulations.

Doctor Koenig, as the oldest representative of the faculty, and who had been a co-worker with Dean Koch in the early days of his career, on behalf of the faculty, presented to the honor guest a beautiful gold plated, steel miniature contusion mortar and pestle, on which was inscribed:

1891 1916
Presented to
Julius Arnold Koch
by his Colleagues
In commemoration of his
25th Anniversary
as Dean of the
Pittsburgh College of Pharmacy

Short addresses followed by Chancellor Samuel B. McCormick, Louis Emanuel, President of the College; John C. Wallace, Chairman of the Board of Directors; B. E. Pritchard, Secretary of the Board. Dean Koch, who had been kept in the dark as to the significance of the occasion, was then called on and responded in a brief but feeling expression of his appreciation of the eulogies that had been pronounced upon his efforts to make the Pittsburgh College of Pharmacy an educational institution to be proud of. After this, brief remarks were made by George W. Kutscher, T. F. Aschman, and Peter G. Walter; Professor Louis Saalbach acted as toastmaster. Those present were: Chancellor Samuel B. McCormick, Julius A. Koch, F. T. Aschman, Frederick A. Rhoades, Albert F. Judd, Louis Saalbach, Leasure K. Darbaker, Frederick J. Blumenschein, John H. Wurdack, Herman S. Kessler, Karl S Burkett, Louis Emanuel, John C. Wallace, B. E. Pritchard, E. A. Schaefer, William G. Schirmer, John R. Thompson, Carl Saalbach, H. L. Lohmeyer, George W. Kutscher, Peter G. Walter, Morris Einstein, W. E. Rodemeyer, R. W. Henderson, Adolph Koenig.

As a matter of interest we mention that the handsome miniature mortar and pestle, presented to the Dean, was the handiwork of Doctor Blumenschein, who turned it out of a solid piece of steel by means of a lathe.

PERSONAL AND NEWS ITEMS

DR. A. B. LYONS.

On April 1, Dr. A. B. Lyons celebrated his seventy-fifth birthday at his home in Detroit.

The Detroit Branch of the American Pharmaceutical Association honored the occasion with a flowering azalea and a letter of tribute. President Alpers, Secretary Day, Treasurer Whelpley, Editor Eberle, Prof. J. M. Good and others of the American Pharmaceutical Association each sent congratulatory letters. Professor Remington sent a large bunch of roses and a letter of appreciation, and the Congregational Church, of which Doctor Lyons is a life deacon, also sent a large bunch of roses. Other friends sent flowers or other gifts, so that his house was thoroughly decorated.

Doctor Lyons's health did not permit of a special dinner, or any celebration of a taxing nature, so the expressions of regard had to be made in a quiet manner.

Doctor Lyons is a man whom to know more intimately is to honor and esteem the more. Both his scientific attainments and his personal character command the more respect as one learns to know him better.

LETTERS OF APPRECIATION.

A congratulatory letter by Dr. William C. Alpers, President of the American Pharmaceutical Association, expressing his appreciation and that of the Association for the valuable and unselfish services of Dr. A. B. Lyons:

"As President of the American Pharmaceutical Association, I am happy to send you our heartfelt congratulations on the seventy-fifth anniversary of your birth. But few of our members are privileged to live long enough to see this remarkable day—a day of rejoicing and happiness to all those that reach it. I am sure that I express the thought of every one of our members in saying that it is our sincere wish to be with you to-day, to look into your eye, to shake your fraternal hand, and to rejoice with you at this rare distinction that Providence has bestowed upon you; and this desire is the more intense and sincere as the American Pharmaceutical Association greets you as one of its best and most loyal members.

"The records of our proceedings show the true and unselfish labor that you have performed for the advancement and betterment of our profession. In untiring devotion and energy you have contributed to our literature, helped in the solution of our most difficult problems, and always stood in the foremost ranks of the searchers and fighters for truth and justice. In quiet modesty—the attribute of true greatness—you have performed your duty, and your devotion was known only to those who had the privilege of coming in closer contact with you and of casting a glance into your heart.

DR. ALBERT B. LYONS

Honorary President, American Pharmaceutical Association, 1913-1914

"Accept, then, to-day, not only my personal congratulations, but those of every member of the American Pharmaceutical Association, for whom I speak. Your services will be recognized as long as Pharmacy continues to be a profession, and your example can be put before the young as a model of true devotion and earnest endeavor. Though the weight of years may rest on your shoulders, your mind has remained active and your heart true and young, in the consciousness of a blissful and serviceable life devoted to the welfare of others, always remaining true to the ideals that have guided your steps throughout your long and beautiful career.

"Extending to you again, on this happy day, my sincere and hearty congratulations, I am

"Yours in fraternal friendship,

(Signed) "W. C. ALPERS."

An appreciation and toast on the occasion of the celebration of Dr. Lyons's seventy-fifth birthday, April 1, 1916:

"To Doctor Albert Brown Lyons, pharmacist, chemist, botanist, scientist, philosopher, but above all, a Man, who has reached a ripe age but who will never be old; who for half a century has devoted his life to uplifting service for his fellows; whose labors have contributed to promoting the health of man, to the conservation of his vital energies, and to his morale. In his devotion to science no research has been too exacting or minute, and no labor too painstaking or intricate to quench his determination to live up to his highest ideals.

"May God spare him for many more years, and may each day bring to him happiness and renewed strength.

"We cannot honor this noble, self-sacrificing man too much; may I be permitted to join my spirit with yours in this celebration, for this is the fervent wish of his friend.

(Signed) "JOSEPH P. REMINGTON."

CHICAGO VETERAN DRUGGISTS' ASSOCIATION CELEBRATES BIRTHDAY OF THOMAS N. JAMIESON.

The initial meeting of the Chicago Veteran Druggists' Association was held June 21, 1898, when there were present Albert Elbert, E. O. Gale, W. Jauncey, H. Biroth, C. Plantz, J. C. Borcherdt, J. S. Jacobus, Isaac Fry, F. Schroter, H. H. Green, Wilhelm Bodemann, P. H. Patterson, W. Scupham,. W. K. Forsyth, J. Blocki, W. Grassly, Th. Behrens, P. Behrens, W. Dyche, F. N. Schmidt and T. N. Jamieson. Of this number, the first ten have passed away. The others frequently mingle at the festive board.

Such was the quarterly meeting held on February 24, preceded by the customary Round Table luncheon, at which time the birthdays of Richard Voge and T. N. Jamieson were celebrated; the latter, however, in a preliminary way only.

At this time also, Recording Secretary Bodemann was presented with a handsome black leather portfolio. The presidential office is given to various members at the election of the membership. The office of honorary president, occupied by O. F. Fuller, that of corresponding secretary, held by John Blocki, and that of recording secretary, by Wilhelm Bodemann, are permanent offices.

THOMAS N. JAMIESON

Thomas N. Jamieson was born February 29, 1848. Hence his birthdays come less frequently than do those of the majority of the members. The last celebration was held on February 29 at the Germania Club and constituted quite an elaborate function, arranged for by Messrs. Bodemann, Blocki and Otto. The first order at the table was a silent toast to the departed friends.

After having done justice to the banquet, President Scherer introduced the toastmaster, Otto Hottinger, who called on Secretary Bodemann to respond to a toast to Mr. Jamieson, who expounded on the true friendship and many virtues of this honored member, now sojourning in California and therefore not present at the meeting held in his honor.

Among the guests of the evening were, Judge Pettit, H. D. Crooks, Carl von Herman and F. H. Kellet.

Judge Pettit spoke at length, and brief remarks were made by Messrs. Englehardt, Potts, Forsyth, Grassly, Craig, Schmid and Carr.

Mr. O. F. Fuller was unable to be present on this occasion.

The evening was a most enjoyable one and again presents the possibilities for other cities following in the footsteps of Chicago in organizing associations of this kind.

We are indebted for a most interesting report of this meeting to Mr. T. Schmid.

THE PHARMACIST AND THE LAW

PRICE MAINTENANCE REFERENDUM.

The United States Chamber of Commerce, on the urgent request of those who are interested in legislation to prevent price cutting, has submitted the question for a referendum vote of the branches of the organization throughout the country, as to whether legislation as to fixing resale prices and the general maintenance of prices is desired by the business interests of the country represented in the United States Chamber and its branches.

This question of legislation on resale prices represented in various bills before the Committee on Interstate Commerce of the House has received practically no consideration during the present session, and intimations are given by members of the committee that the committee is so much engaged with other matters that the subject has not been permitted to come up. It is presumed that on any results of a referendum vote will depend whether the effort will be made to press this legislation in the House at this session.

DRUGLESS THERAPY.

The Pennsylvania Bureau of Medical Education and Licensure has adopted the term "Drugless Therapy" under which to license certain practitioners of medicine. The Bureau has defined Drugless Therapy specially to include:

1. Any treatment having the spine for a base, including (*a*) Chiropractic; (*b*) Napravit; (*c*) Spondylotherapy; (*d*) Chiropractic-Spondylotherapy: (*e*) Neuropathy; (*f*) any other treatment having the spine for a base not here specified.

2. Any treatment having the mind for a base: (*a*) Suggestive Therapeutics; (*b*) Metaphysics; (*c*) Vitatherapy; (*d*) Magnetic Healing; (*e*) any other treatment having the mind for a base not here specified.

3. Any system, method, science, or art of treatment based on 1 and 2 which is in existence or may come into existence and not already specified under the above named divisions.

Admission to Drugless Therapy practice in

Pennsylvania is granted by the issuance of a license to a candidate who passes the licensing examination and satisfies all the other legal requirements.

The Bureau has defined Massage and Allied Branches especially to include:

1. Any treatment having any manual, physical, mechanical exercise, apparatus, appliances or treatments for a base, including (*a*) massage; (*b*) medical gymnastics; (*c*) Swedish movements; (*d*) mechanotherapy; (*e*) vibro-massage; (*f*) any other manual, physical, mechanical method of exercises, apparatus, appliances or treatments not here specified.

2. Any treatment having water, air, heat, cold, light, sun, earth for a base, including (*a*) hydrotherapy; (*b*) heliotherapy; (*c*) thermotherapy; (*d*) any other treatment not here specified but having water, air, heat, cold, light, sun, earth for a base.

3. Any treatment having electricity for a base, including (*a*) electrotherapy; (*b*) electromassage; (*c*) electric-light baths; (*d*) any other treatment having electricity for a base.

Admission to the practice of massage and allied branches in Pennsylvania is granted by the issuance of a license to the candidate who passes the licensing examination and satisfies all other legal requirements.

BILL TO REGULATE BIOLOGICAL PREPARATIONS.

A bill has been introduced in the House by Representative Steele, of Iowa (H. R. 13278), to authorize the Secretary of Agriculture to license establishments for and to regulate the preparations of viruses, serums, toxins and analogous products for use in the treatment of domestic animals. This measure makes it unlawful to ship in interstate commerce worthless products of the kinds enumerated, and in addition to providing establishments for the preparation of these products provision is made in the bill for proper marking of the products when offered for sale. Penalties are provided for violation of the law. The measure has been referred to the Committee on Agriculture of the House.

NEW NARCOTIC LAW ORDER FORM.

The officials of the United States Internal Revenue Bureau, charged with the duty of enforcing the narcotic law, have prepared and submitted to representatives of the various trades a sample of a new order form greatly simplifying the first draft of order form provided when the law was enacted. Under the new form, if it shall be finally approved as satisfactory to physicians, druggists and the government, duplicate copies of orders required by law will be made with carbon paper on a tinted sheet in order to comply with the law as to exact duplicates of the orders for narcotic drugs under the terms of the act. The opinion of the officials is that this will make technical violations of the law less frequent and facilitate the handling of these narcotic drugs.

TREASURY DECISION 2309.

T. D. 2309 supplements, T. D. 2213, and exempts physicians' prescriptions for identical compounds exempted under section 6 of the Harrison law. The decision follows:

Section 6 of the act of Congress, approved December 17, 1914, does not apply to extemporaneous prescriptions unless written for a preparation or remedy as hereinafter defined. The exemptions in that section apply exclusively to ready-made preparations and remedies prepared in accordance with the United States Pharmacopœia, National Formulary or other recognized or established formula, usually carried in stock by dealer and sold without a prescription, provided such preparations and remedies are sold, distributed, given away, dispensed or possessed strictly in good faith for medicinal purposes only, and not for the purpose of evading the intentions or provisions of the act. The selling, dispensing or possession of any such preparation or remedy containing opium, or any alkaloid, salt or derivative thereof, for the purpose of satisfying or of ministering to a drug habit is not selling or dispensing for medicinal purposes within the intentions of the law.

Preparations and remedies within the intent of section 6 are hereby defined to be ready-made compound mixtures prepared in accordance with a recognized or established formula as indicated above, which contain not more than one of the enumerated drugs in a quantity not greater than that specified, together with other active medicinal drugs in sufficient proportion to confer upon such preparations or remedies valuable medicinal qualities other than possessed by the narcotic drugs if dispensed alone. Simple dilutions of a narcotic drug made by admixture with inert or nearly inert substances, as sugar of milk, or simple solutions of narcotic drugs in water, syrup, diluted alcohol, flavoring matter, etc., are not *bona fide* medicinal preparations within the meaning of the exemption.

The several alkaloids, salts or derivatives of opium, if aggregated in the same mixture, are not exempt. A preparation which contains the permitted maximum quantity of any one of the alkaloids, salts or derivatives, if fortified by the addition of any one of the other named alkaloids, or of its salts or derivatives, is not a preparation or remedy of the character contemplated by the exemption of section 6.

Preparations or remedies which come within the exemptions of section 6, as herein defined, may be sold with or without a prescription, which prescription may be refilled, if sold wholly in good faith for medicinal purposes only.

The refilling of a narcotic prescription for an exempted preparation or remedy, as herein defined, combined with other non-narcotic medicinal agents, with a consequent further dilution of the mixture, will be permitted.

The foregoing decision is made by Commissioner Osborn, of the United States internal revenue office, with the approval of W. P. Malburn, acting Secretary, is issued as of date of March 11, and is intended as stated to be "an interpretation of section 6 of the act of December 17, 1914, supplementary to T. D. 2213."

THE AMERICAN DYE INDUSTRY.

The dyestuff situation, as outlined by Dr. Charles H. Herty, professor of chemistry of the University of North Carolina, and president of the American Chemical Society, is such that it will be possible for the United States to manufacture her own dyestuffs. He declares that owing to the experimental stage of this industry in this country it is necessary that a protective tariff be instituted by Congress in order that the industry may be freed from foreign competition.

Dr. Herty has stated that an astounding situation presents itself to-day to the American nation. "Industries, the annual output of which is valued at billions of dollars, with laborers numbering millions of American citizens, find themselves directly faced with a most serious crisis due to the cessation of shipments of dyestuffs from Germany. To meet this situation American manufacturers and capitalists have stood ready to proceed with all possible haste to the development of a national self-sustained dyestuff industry. They ask only that Congress insure against unjust foreign competition, which they rightly realize cannot be met on even terms for several years, and which they have every reason to believe will be ruthless in its character, in its efforts to regain lost markets."

WAR DEPARTMENT

List of changes of station covering period ending March 31, 1916, in the cases of Sergeants First Class and Sergeants Hospital Corps, U. S. Army.

SERGEANTS FIRST CLASS.

Thomas E. Brower, from Ft. Oglethorpe, Ga., to Southern Department.

Algernon Van Aller, from Philippine Department, to Ft. Wood, N. Y.

Pinkney L. Ogle, from Hawaiian Department, to U. S. on furlough.

Samuel A. Weir, from Ft. Robinson, Neb., to Southern Department.

Robert G. Kennedy, from Ft. Riley, Kan., to Southern Department.

Clifford H. Perry, from Ft. Crockett, Tex., to Southern Department.

Richard A. Wood, from Frankford Arsenal, Penn., to Depot Q. M., Philadelphia.

John Keralla, from Ft. Wood, N. Y., to Frankford Arsenal, Penn.

Nealey Prater, from Pres. of Monterey, Cal., to Southern Department.

Welcome N. Powell, from Letterman Gen. Hosp., to Southern Department.

SERGEANTS.

Frank Cassidy, from Presidio of S. F. Cal., to Ambulance Company No. 2.

Lemuel J. Rogers, from Ft. Myer, Va., to Canal Zone.

William S. Washburn, from Madison Bks., N. Y., to Canal Zone.

Fred H. McClure, from Columbus Bks., O., to Canal Zone.

John J. Pempey, from Walter Reed General Hospital, to Canal Zone.

Arthur Bade, from Ft. McKinley, Me., to Ft. H. G. Wright, N. Y.

Alvin W. Owen, from Ft. Clark, Tex., to Ft. Sam Houston, Tex.

Harry Birch, from Vancouver Bks., Wash., to Hawaiian Department.

George W. McWorter, from Pres. of Monterey, Cal., to Hawaiian Department.

Harry B. Hoyt, from Hawaiian Department, to U. S., on furlough.

David W. Diven, from Philippine Department, to Letterman General Hospital.

David Perkins, from Ft. H. G. Wright, N. Y., to Ft. Michie, N. Y.

To Southern Department:

Joseph F. Landrock, from Alcatraz Island, Cal.

Roland E. Preston, from Alcatraz Island, Cal.

John C. Mullenix, from Columbus Bks., O.

Willard M. Barton, from Columbus Bks., O.

Allen Hull, from Army and Navy General Hospital.

Joseph W. Gregory from Ft. Hamilton, N. Y.

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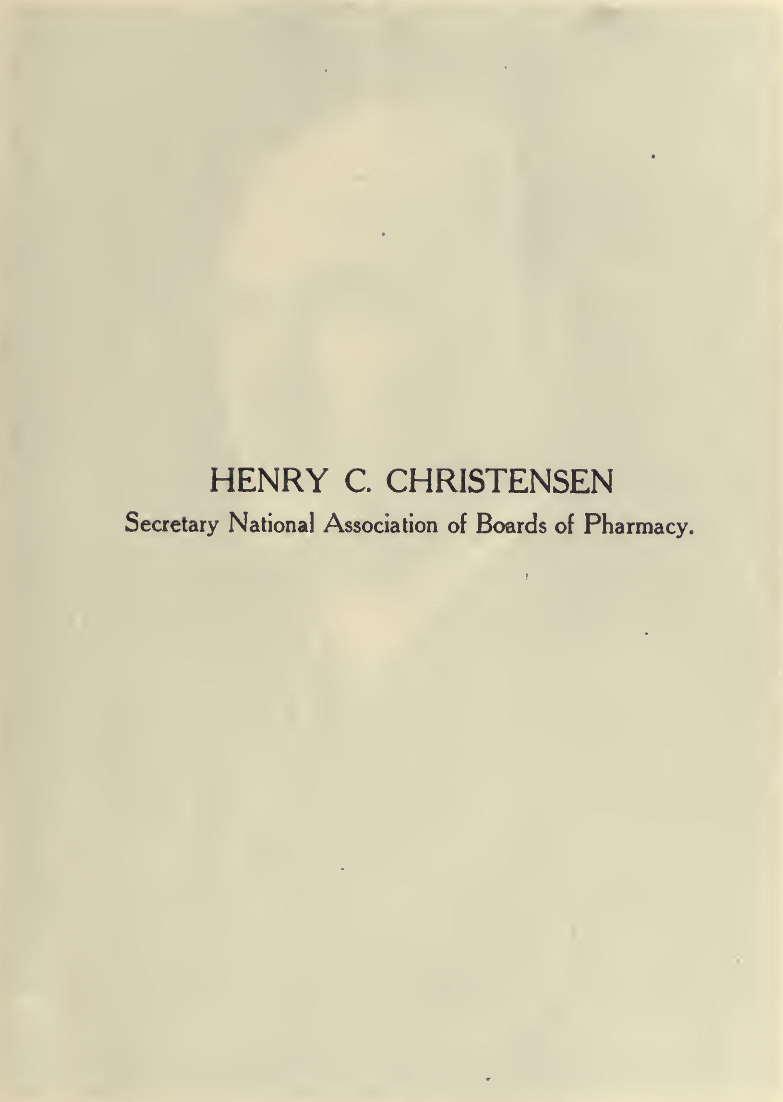


HENRY C. CHRISTENSEN

Secretary National Association of Boards of Pharmacy.

H. C. CHRISTENSEN

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. V MAY, 1916 NO. 5

HENRY C. CHRISTENSEN.

A feature of the San Francisco convention, which will be judged of great importance as the work progresses, was the harmonious and fruitful joint meeting of the Faculties and Boards—a meeting which brought about a measurably closer relation and coöperation between these national bodies and which thereby promises much for the establishment of uniform standards for the valuation of pharmaceutical training throughout the nation. For the success of this joint meeting, a large share of credit is accorded to the tactful and patient perseverance of the secretary of the National Association of Boards of Pharmacy, Mr. H. C. Christensen.

Mr. Christensen's knowledge of board examinations rests on a firm foundation. Following his graduation from the Northwestern University School of Pharmacy in 1893, where he won the Gilpin Langdon prize for the best preparations made in the laboratory course in pharmacy, Mr. Christensen was engaged in the retail drug business in Chicago as manager or owner for seventeen years, and in 1907 was appointed a member of the Illinois Board of Pharmacy. His intense interest in his new duties led to the elaboration of the practical examination in dispensing, to which he gave much time and effort and which became a noteworthy part of the Illinois examination.

In 1911 he was reappointed on the board of pharmacy following the recommendation of the Illinois Pharmaceutical Association. His first insight into an organization of state boards was gained in the same year, when the Interstate Association of Boards of Pharmacy was formed. Mr. Christensen's activity in this smaller body led to his appointment as chairman of the Advisory Examination Committee of the National Association of Boards of Pharmacy in 1913, and a year later to his election as secretary of that Association, a position which now demands all his time.

Mr. Christensen's ambition, for which he has worked untiringly, is to secure universal reciprocal registration and, as a foundation for this, a higher and more uniform standard for examinations, together with higher educational requirements preliminary to the professional training.

Mr. Christensen is a member of the Illinois Pharmaceutical Association and the Chicago Branch of the American Pharmaceutical Association. He is also Chairman of Joint Examination Committee of the Boards and Faculties.

Wm. B. Day.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

CONDITIONS NOW, AND AFTER PEACE IS DECLARED.

NO retail business has been more disadvantageously affected by higher costs than the drug business, one of the reasons being that there have been comparatively few changes in retail selling prices for many years. A few items, perhaps, have in the past fluctuated sufficiently to make a change in selling prices necessary, but now nearly every drug item is largely affected.

The very unusual situation obtains that a prescription filled to-day may cost decidedly more to-morrow, and in justice to themselves pharmacists are compelled to exact their usual profit. Nearly everywhere publicity has been given, so the public is informed.

The high prices have tempted sophistication, substitution and adulteration, and in some instances such fraudulent practices have been carried so far as counterfeiting the labels of reputable manufacturers and thus fleecing the unwary druggist. This teaches the lesson that retailers themselves impress upon their patrons, namely, that reputation is one of the valuable assets of pharmacists. Attractive prices have in some instances blinded the precaution of retailers, which they should exercise in buying, for the tests which are provided by the Pharmacopœia are sufficient for detecting the gross substitution and adulteration resorted to. Hence, it must be admitted that in some of the cases which have come to public notice, the purchasers were not altogether blameless.

No one need be told that conditions now are abnormal, and it is for this reason that every citizen is interested in what normal conditions will be after peace is declared; certainly they will not be the same as those that obtained before the war—the readjustment in many lines will present serious problems.

As far as the drug business is concerned, there should be a possibility of profiting by experience; it is probably advisable to be judicious in buying. Speculation has entered largely into the advances of prices, for many articles are really not now affected by demand or lack of supply; however, the fact remains that there is an interrelation between many crudes and manufactured products; limited uses for some things have become extensive and we have found that certain drugs have a far larger application in other lines than ours. To be more specific, the various substances that enter into the manufacture of explosives are quite generally known, so that the high price of glycerin, sulphuric and nitric acids creates no surprise; but these and the constituents for production are also required for other manufacturing, therefore numerous articles are affected in price. Castor oil is used extensively in the leather industries and also as a necessary lubricant for aeroplanes; by far the larger amount of licorice is consumed by the tobacco industries, etc. So the links of the chain that have compelled higher prices become evident. With all of that the potential factor is, that the United States is being called upon to supply the world, which sends prices skyward, and in this way we are paying part of the cost of war in Europe, though through other sources than ours the money is coming back.

In the sections of the country where war supplies are manufactured, the cost of labor has advanced, affecting every other line; when peace comes there must be a readjustment and our further foreign trade will largely depend on the attitude of labor, for Europe will be trying to recapture the trade our manufacturers have won. As Frank A. Vanderlip says, we certainly have a better chance to connect up our industries with world trade and world development than ever before, but the fact that one man has a better chance than another, or one nation has greater natural advantages than another, has never yet determined the result of competitive struggle. We cannot rest on a level of cost of production far above the rest of the world and hold our place in the sun.

But to come back to that which concerns us more directly: As far as possible we should establish an American materia medica. It is not implied that proven remedies should be discarded, but heretofore we have depended on Europe's research work, with the result that the medicinal products were manufactured there. We have further protected them by American patents, to our own disadvantage. The recipient of such protection should be called upon to manufacture in this country, if he would enjoy special privileges. Under no circumstances should it be possible to charge us one dollar for what an adjoining country pays only twenty cents. Another condition that may obtain is that in order to discourage American manufacturers, who contend with higher labor cost, European manufacturers may unload large stocks here at low prices.

We have always suffered from high cost of waste, and if our experience will point the way to thrift we will be the gainers. Every state should look into its natural resources and waste products. Plants yielding drugs that we have been importing grow and die, while if the farmers knew them, they might be collected. Many manufacturing establishments have waste material that ought to be converted into useful products.

In every locality meetings of physicians and pharmacists should be held for discussion of the present status of the drug market. The physicians have become wedded to certain therapeutic agents that could readily be displaced; for example, sodium salts for those of potassium, the use of galenicals for active constituents, etc. Physicians should acquaint themselves with the Pharmacopœia and National Formulary and then decide what, in their opinion, they must have, and thereafter pharmacists can offer suggestions for consideration. A careful survey and coöperative study will do much toward relieving the present trying situation and prepare us for utilizing coming opportunities. E. G. E.

PROPAGANDA OF PHARMACY IN THE STORE.

THERE should be a time for inspection and perspection for pharmacists. They should sometimes step on the outside and look in. Pharmacy has a mission, but its potency is lessened when the armamentarium is obscured by the multiplicity and diversity of stock; a cause is often weakened by an explanation and injured by an apology.

Side-lines are essential in the modern drug store for increasing the volume of business and profits, but the pharmacy should be kept separated from that part of the stock in the store. Let it be a pharmacy in a drug store, if nothing more is possible. The public receives a wrong impression of what pharmacy means when the sundry assortment is displayed and arranged with materia medica.

Gifts and sundry items are articles of merchandise that can be sold advantageously in a drug store, should be advertised and displayed according to modern store methods whereby such sales are promoted, but let pharmacy have an opportunity to represent itself without detracting from its mission.

We should be honest with ourselves and with the public; no success was ever permanent that required the obscuring of something, that compelled an apology. If, in order to preserve the success of those engaged in the drug business, merchandizing is essential, let us be frank and admit it; certainly business conducted on the high plane of modern ideas is honorable and not something to be ashamed of. Make-believe is harmful, whatever its association may be.

Another thought: How can sellers of medicines excuse themselves when they are purveyors of harmful preparations, of those that are not what they purport to be, and the sales of which are established by high-sounding and persuasive argument, but not applicable in fact to the preparation advertised? The encouragement of such traffic cannot contribute a service which will establish pharmacy on a firmer foundation.

We do not advocate counter-prescribing, but just for the sake of thoughtful consideration, would the public be better served or not, if, instead of some of the preparations referred to, *known* to be either inefficient or dependent for effect on the stimulant contained therein alone, they would be persuaded to purchase a preparation made by the pharmacist, and not of the former type?

As a matter of fact, would not such action be the lesser offence, and would this not finally educate the public to consult physicians when necessary, even though for minor ailments they continued to purchase the remedies prepared by the pharmacists? Would not medicine and the public benefit thereby?

Of course, here comes the old familiar question: Am I my brother's keeper? Counter-prescribing is often looked upon from a very restricted viewpoint—the sales of proprietary medicines constitute, at least occasionally, a like offence as the suggestion of simple remedies prepared in the pharmacy.

Aside from the thought relative to what portends the best service, this writing is intended to stimulate a deeper interest, if possible, in applying the work of pharmacists and physicians who seek to devise standards for drugs and representative formulas for preparations of them.

In a way, physicians have similar problems. Take the patient who expects a prescription but really needs no medicine. While from one point of view, the physician should so advise the patient, in many instances this would create dissatisfaction. If a sensible person were told that the medicine would have no effect on the *malade imaginaire* except through the mind, he would doubtless retort, "What sort of a fool do you think I am?" It is only because the real intentions are concealed that the patient in confidence takes the medicine. But patients are not born with the belief that every symptom must be counteracted by a drug—they acquire that belief by persuasion. So, after all, this is a form of quackery.

The public will gradually become educated along both lines, and during the meantime it is certainly advisable to act according to moral dictates and rational practicability and with progressive forethought. The disclosures after the Federal Food and Drugs Act became effective are not too remote for reference; the very fact that harmful and misleading preparations were sold did not give the public greater confidence in those who knowingly, or otherwise, promoted such sales.

This, then, is a call for bringing into more extended use the preparations of the Pharmacopœia and National Formulary. We are all interested in developments that will elevate pharmacy and enable pharmacists to render better service; so even these suggestions may be helpful if, when applied, they will make pharmacists worth more to themselves and worth more to others. E. G. E.

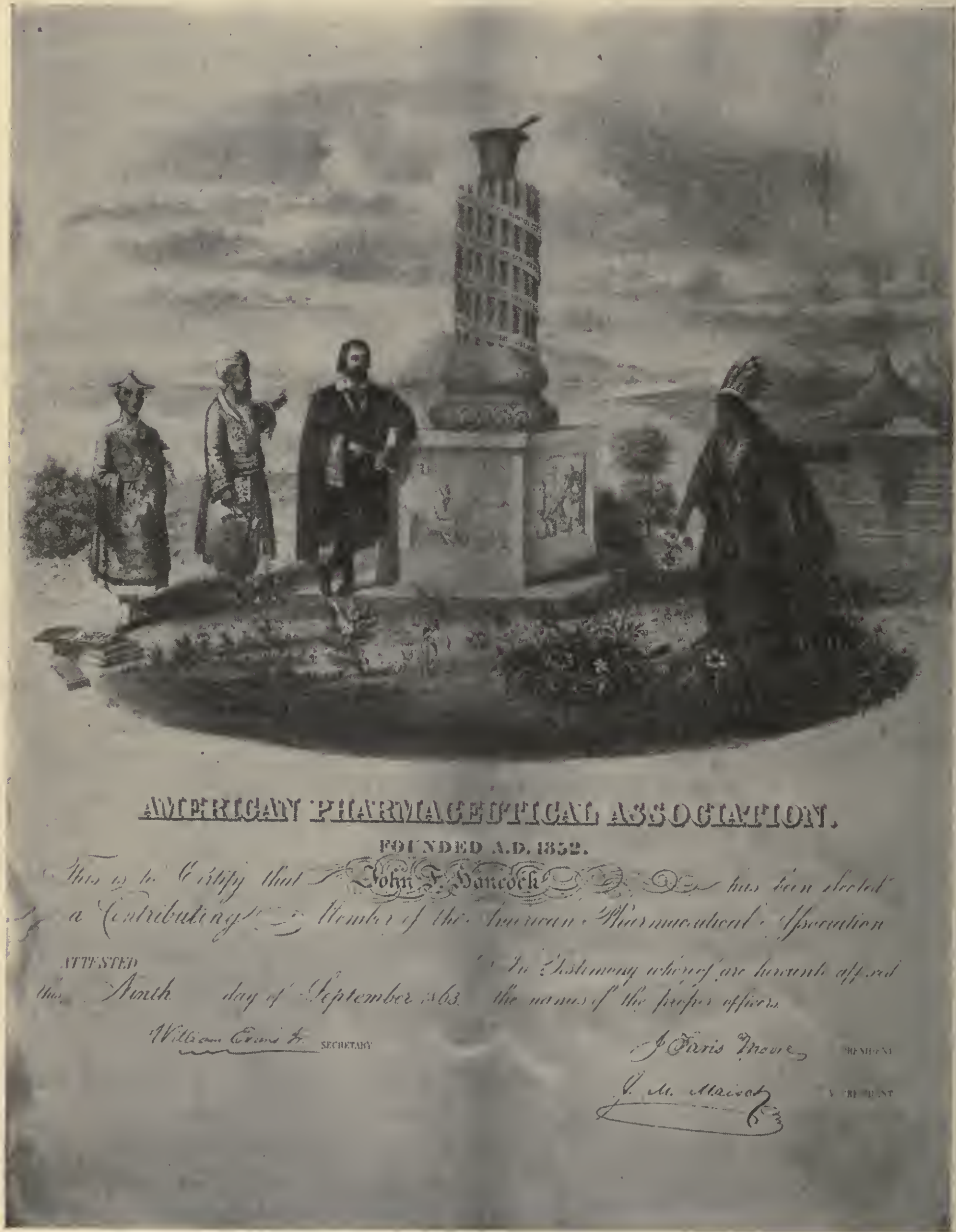
THE ORIGINAL CERTIFICATE OF MEMBERSHIP OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

At the meeting of the American Pharmaceutical Association, held in Boston August 24 to 26, 1853, a committee was appointed "to inquire into the expediency of obtaining a form of certificate of membership for the use of the Association, with such insignia and devices, or otherwise, as shall in their opinion be suitable." The members of this committee were Andrew Geyer of Boston, Charles Ellis of Philadelphia, and Joseph Laidley of Richmond.

A report of the committee was made at the session held in Cincinnati in 1854, and the Association gave instructions for further report to be presented at the annual meeting held in New York in 1855. In the meantime, the chairman, Mr. Geyer, had died and the report was made by Charles Ellis, and thereafter William Procter, Jr., was named a member of the committee in place of the deceased, and John Meakim of New York was added to the committee.

The final report and presentation of certificate were made at the fifth annual meeting, held in Baltimore, September, 1856, and therein the certificate was described. We are using the words of the report for the description and presenting a reduced cut of the certificate of Dr. John F. Hancock, Baltimore, chairman of the William Procter, Jr., Monument Committee.

" Near the centre of the picture is a monument in honor of Pharmacy, consisting of a square panelled base, from which rises a fluted column, surmounted by the mortar and pestle. Encircling the shaft of the column is a winding scroll, on which appear the names of Galen, Geber, Avicenoa, Bazil Valentine, Lemery,



AMERICAN PHARMACEUTICAL ASSOCIATION.

FOUNDED A.D. 1852.

This is to Certify that John F. Hancock has been elected a Contributing Member of the American Pharmaceutical Association

In Testimony whereof are hereunto affixed the names of the proper officers.

ATTESTED this Ninth day of September 1863.

William Evans Jr. SECRETARY

J. Faris Moore PRESIDENT

J. M. Maisch V. PRESIDENT

CERTIFICATE OF MEMBERSHIP OF JOHN F. HANCOCK, BALTIMORE

Baumé, Scheele, Davy, Sertuerner, Robiquet, Pereira and Liebig. One of the panels represents an alchemist at his furnace, the other exhibits a series of pharmaceutical apparatus, the balance, gas burners, Liebig's condenser, graduated measure, 1000-grain bottle, etc. There are four human figures: a European, a Turk, a Chinese, and an American Indian. The European is leaning gracefully with his left arm on the monument, with a book (the Pharmacopœia) in his left hand, whilst his index finger points toward the Structure. The Turk holds in his right hand the Poppy and Acacia vera, whilst his left is extended toward the horizon, where a group of pyramids symbolizes the East. The Chinese holds in his right hand the Laurus camphora and Piper nigrum, whilst at his feet is a pile of Chinese books, towards which he points. The American Indian, on the right of the picture, is represented as in the act of speaking, with a branch of cinchona in his right hand, and his left extended toward the south, indicated in the horizon by a volcano (Cotopaxi) in the Andes, and by a Mexican teocalli. Before him, on the ground, is a rude wicker basket containing a variety of plants from Southern America, among which may be recognized ipecacuanha, cinchona, quassia, angustura, copaiba, guaiacum, canella, sarsaparilla and jalap, whilst around him, growing from the soil, are several well-known North American plants, as senega, spigelia, sanguinaria, podophyllum, etc.

The explanation of the picture is as follows: The European represents the scientific pharmacy of all countries; every region contributes to its materia medica; and his scientific art, illustrated by the illustrious individuals named on the column, has votaries in every country where European civilization has extended, without reference to nationality. The Arabian symbolizes that imperfect empyrical pharmacy that pertains to Mohammedan countries. The Chinaman signifies that ultra-oriental pharmacy now practised in India, China, and Japan, embraced in the volumes before him, and which he boasts as antedating the earliest records of European science. The Indian is introduced to Americanize the picture. He is represented as saying, however valuable are the plants growing around him, and with the virtues of which he is familiar, those given by the Great Spirit to his aboriginal brethren of tropical America, of which the basket contains a sample, are far more important and useful.

One of the reasons for discontinuing this certificate was the use of the design by a proprietary medicine manufacturer.

WOMEN'S SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION.*

PROCEEDINGS OF THE THIRD ANNUAL CONVENTION HELD IN SAN FRANCISCO, CALIFORNIA, AUGUST, 1915.

SECOND SESSION.

The second session of the Women's Section was held in the Palm Room of the Bellevue Hotel on Thursday, August 12, at 3 P.M.

The meeting was called to order by the President.

The principal feature of the afternoon program was a symposium on "What the Women's Section Can Do," to which the following women contributed: Mrs. Gray, Mrs. Fennel, Mrs. Ruddiman, Mrs. Kenaston, and Miss Creighton.

SYMPOSIUM: WHAT THE WOMEN'S SECTION CAN DO.

Mrs. M. M. Gray: I have two things in mind: First, keep up the agitation for women members. I feel certain that there are a great many women pharmacists all over the United States that have not yet been reached by our Membership Committee, and there are a few women graduates each year. Second, I have thought of membership in the American Pharmaceutical Association as a prize to be offered by the Women's Section to women graduates from recognized colleges of pharmacy, these to be given for proficiency in college work. If several prizes of this nature could be given each year, it would be the means of interesting a much larger number of women in the American Pharmaceutical Association and the Women's Section.

Mrs. C. J. Fennel: Being a German by birth and conversant with German pharmacy and pharmacists, I believe I am in a position to discriminate between German and American pharmacists.

The German pharmacist occupies a very high professional and social standing. In my opinion, American pharmacists—and by that I mean the great mass of American pharmacists, and as a rule, not members of the American Pharmaceutical Association—enjoy no professional standing and socially occupy no exalted position. There must be a definite reason for such a condition, especially when only about five percent of the pharmacists of this country are members of the only association that stands for, and has always aimed to maintain, the highest ideals of American pharmacy, the American Pharmaceutical Association.

I believe education and business conditions to be the two main causes of this state of affairs. Overcrowding of stores forces the pharmacist to become a merchant, and so puts him in the merchant class. The main reason is the low standard of admission to some of our colleges, and, too, the fact that too many are permitted to make state examinations without college education and are given degrees they have not earned. I am sure when the pharmacist will accept *only* college graduates as clerks and assistants conditions will change gradually, and when the pharmacy of to-day has become the real *drug* store as it is in Germany, then will the American pharmacist receive his due recognition.

Mrs. E. A. Ruddiman: One of the best things the Women's Section can do is to take up the matter of shorter hours for druggists in the two forms of decreasing the number of hours of work daily and also partial closing on Sunday, emphasizing the fact that pharmacists themselves should regulate this matter and see to it that any laws passed are of a kind to help them in their business.

I would suggest that a central committee be appointed whose duty it shall be to prepare articles on this subject for publication in the trade journals, in magazines, and in the daily papers of the country. They may use material from any source and written by any person. The articles thus prepared should be sent to the different sections of the country for dissemination by the local members. The committee should coöperate with the women's sections of the state associations and the other national associations. They should be persistent in their efforts and not be deterred by lack of results. All of this is for the purpose of educating the members of the profession, physicians, and the public at large in the necessity for this reform and the best way to accomplish it.

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*Continued from p. 365, April issue.

In this Women's Section I am sure it is not necessary to call attention to the fact that by uniting and by continued effort women have accomplished a great deal toward a better life for the community.

Mrs. H. R. Kenaston:

South Dakota sends this beautiful thought to carry away;
It may lighten our burdens and brighten our day;
Pharmaceutical study is so full of beautiful things,
Let us gather them in and equip them with wings;
Thus the knowledge we gain may rebound to another,
And help upward and onward some sister or brother.

The ladies who, by their invitation, have permitted me to participate in this symposium of ideas as to what the Women's Section can do have conferred upon me an honor which has given me great pleasure. To have a share in the deliberations of this distinguished body is a distinction any one should be proud to accept.

The creation of the Women's Section by the American Pharmaceutical Association at its meeting in Denver in 1912 was the expression of an organized effort on the part of the pharmaceutical profession of this country to recognize the place women are attaining in the profession. As a Section of this great national scientific body, more will be accomplished for the women in the profession than they could hope to attain by separate organizations of women, because their efforts will be sustained by the influence of the American Pharmaceutical Association and the prestige accorded that body as a result of its sixty-two years of excellent work.

Women pharmacists should all be active members of their state and national associations, and to this end I would heartily endorse the commendable plans of the Special Sub-Committee on Women Members and their action when they appointed a chairman in each state with duties assigned to interest the women members of their respective state associations in membership in the American Pharmaceutical Association.

Since service is the price we pay for the benefits of membership, each member should be designated some service which she is to render the Women's Section. True, she can solicit membership, create enthusiasm, etc., but for what? For the benefits each is to receive through the service she performs.

The creation of a Committee on Botany and Medicinal Plants would open a line of service in which both professional and non-professional women could effectively work together, and that along professional lines both elevating and educational. Combined with progressive thought and ideas, make the preliminary plan to investigate the honest therapeutic value of plant life, the possibilities of improvement in drug value of the drug plants, as well as the economic value to the nation which would result if weeds that are used in medicine were collected and preserved. How many useful and beautiful phases of economic value are represented in the despised weeds surrounding us, if we only look for them! The Creator has told us many things, but much still awaits the investigator before His great plan of the plant life is wholly utilized for the benefit of His people.

The women of to-day have reason to rejoice as they pause upon the threshold of the future and with confidence and unfailing trust comprehend the greatness of women's organizations and the possibilities for manifold benefits to womankind as represented in our Section.

A great benefit would result to pharmacy in general and to women in particular if the Women's Section of the American Pharmaceutical Association could bring before the young women, at the time in their life when they are deciding the very important question of their life-work, the comparative advantages of engaging in the profession of pharmacy.

Here is the opportunity for service in the vital interests of the problem which our young women must solve. We, as women, will render the greatest service when we realize the part assigned to us in this critical period of decision, and by a plan worked out by the deliberations of the Women's Section during the San Francisco meeting, be prepared to give inspiration and encouragement to the young women of our high schools and universities, and to do all in our power to diffuse favorable public sentiment toward young women desiring to enter the profession of pharmacy. To this end, the members of our Section should emphasize the right and capabilities of women to engage in the profession of pharmacy as a means of earning their livelihood; to unite the women now engaged in pharmacy, in any and all of its phases, for mutual assistance and protection; to coöperate in the promotion of the general progress of pharmacy.

Miss Mary L. Creighton: While it is reputed to be an easy matter to say little in many words, to reverse the case, in compliance with our Secretary's suggestion is far more difficult.

In attempting to answer the query, "What can the Women's Section do?" the thought presents itself, why do not women take more interest in the increased efficiency of our schools and colleges of pharmacy? These institutions, as a rule, are controlled exclusively by men, who, with very few exceptions, constitute the entire teaching force as well as the official boards, and who fix the courses of study, laboratory equipment and practice, etc., to suit their ideas of what is required for proper instruction in the various branches of a pharmaceutical course —a condition which is recognized as being largely, if not wholly, due to the difficulty of securing competent women to fill such important positions.

Experience shows that in connection with public school work women not only take a lively interest in the welfare of the pupils, but that a large majority of public school teachers are women. The conditions are not radically different in technical schools, and there is certainly an opportunity here for wisely-directed effort by the Women's Section toward raising the standard of pharmaceutical education:

First, by increasing the entrance requirements, so that the unfit will be prevented from entering upon a career for which they are unprepared and in which they can have but small hope of success; and

Second, by the adoption of uniform courses of study in all the teaching institutions of the profession—with accompanying laboratory training of approved scope and character, as proposed by the A. Ph. A. Syllabus.

With proper preliminary education and the additional training received in a first-class college of pharmacy, the student acquires the ability to apply the knowledge thus gained when he takes up the actual duties of the pharmacy. His information will be in usable form, so that he is able to draw general conclusions from particular facts. In other words, his work as a student will have so developed his reasoning powers that he will not be compelled to stop and consult authorities when some prescription difficulty arises.

Unfortunately there are many of whom the above cannot be said. They are lacking in the initiative which would enable them to infuse sufficient energy into the performance of professional obligations to lift them from the level of those "who work from sun to sun to do what other men have done"; a habit for the cure of which the logical prescription is intelligent coöperation with their fellow pharmacists through the medium of the various pharmaceutical organizations and publications. Such coöperation will obviously be increased as more attention is paid to the proper preparation of the student, since it is a well-established fact that a liberal education broadens the outlook of the individual so that he is apt to be moderate both in the views which he maintains and in their expression. He has learned the rules of the game of life and is able successfully to apply them. In short, he is able to see the other side, a fact which goes far toward promoting harmony and community of interests professionally.

Without ideals there can be no satisfactory advancement, and in order to gauge progress it is essential to work with a definite purpose in view. Opportunity, "master of human destinies," knocks at our gate. As members of the American Pharmaceutical Association the Women's Section represents *our opportunity,* no matter what the particular form in which each of us may recognize it.

At this point President Caswell A. Mayo, of the American Pharmaceutical Association, was introduced and spoke as follows:

If you will pardon the interruption, ladies, I wish to apologize when I failed to appear earlier. We have only one President, and I have no astral body, otherwise I would have my astral body remain here. If I had my choice, I would have joined the Women's Section first.

At the last meeting of the Section, at Detroit, the President mentioned with regret that there was no gavel, to learn which I was rather surprised, because I thought the ladies were absolutely orderly and did not require being called to order, but since it has developed it is necessary to provide some means of calling ladies to order, and since we are in California at the wonderful Exposition they have created, I thought it would be rather interesting, possibly, if the ladies could carry back with them a souvenir, and so, after a great sacrifice of time on the part of Mrs. Phillip, we have obtained this orange-wood gavel.

It would be entirely appropriate that there should be something to indicate the very high esteem in which the Women's Section is held by the Association at large. I only wish I could contribute something of serious value to your deliberations.

You are well aware of the fact that since the division of the work of the Association into sections, it is almost impossible for any one present here to cover all and give attention to each.

I wish you every success in your work, and trust that this gavel will be used but little, so it may last for many generations. I have, therefore, great pleasure in presenting this gavel, and trust that you may wield it lightly and have no trouble in keeping the ladies in order. (Applause.)

The President: Mr. President Mayo, I take pleasure in thanking you from the bottom of my heart for this gavel, and to receive it gives me great pleasure.

After the departure of President Mayo the reading of the papers in the symposium was discussed.

The President: If there is one note struck more than another in all of these papers it has been that women might work for pharmaceutical courses on the part of the schools. There seems to be a lack everywhere in the lower schools of particular instruction in pharmacy, and from nearly every section of the United States they have struck the note that we might work for better courses in the lower schools. If we had nothing else to work on for the next several years, we would have plenty to do, and we might begin to investigate with the view to the proper foundation work. My greatest reason is that my son, at his majority, will likely go into the store, and I am afraid to have him go away from home for his pharmaceutical training; I am afraid of the influence, and believe those who leave home to go to college towns are in tremendous danger. Cannot we do something so that in our high schools foundation work shall be done? It has been done in some states, very well done. After that, cannot we have our university courses prepared just a little better? If we do nothing else but this in laying the foundation work for next year, it seems to me that we have something to take home.

While it seems to me that the Women's Section has not progressed, when I hear these papers I am still convinced that there is still some interest in the Women's Section of the American Pharmaceutical Association.

Mrs. Godding: We must remember we were not born until 1912. Nashville was our first meeting, Detroit was the second, and we are very, very young. There are members of the American Pharmaceutical Association—men and women alike—who do not understand why this Section was formed and what it is to do. The women did not start it. It was the men—men who have been leaders in the Association and always worked for its best interests—who suggested this Section. Women pharmacists have a place here which we wives have not, but we are closely allied to pharmacy; we have married pharmacists, and if our husbands bring us to these meetings because of the pleasure of travel and the pleasures that come from seeing this great country of ours, is it not due that we as loyal and true wives shall help to sustain our husbands and give to this Section the support that we must give it if it shall be a success? It is yet but a child. It is the acorn from which the great oak will grow, and I feel that we need to disseminate knowledge of the objects and aims of this Section.

Mrs. Phillip: Mrs. President, when you asked me if I would speak of our California association, I promised to tell what the women have done here and what I know the national association wants them to do. Many auxiliaries have been started, usually in the city where the state convention was held. I have been watching the progress in this state for the last four years, and I will say that the men who attend regularly and who constitute the largest part of the attendance are the men whose wives belong to the auxiliary. Another thing that has been done is the Sunday closing. On our side of the Bay we close on Sunday from 1 to 6. We tried in various ways to get the proprietors to come together and discuss the benefits to be derived from having a day off. We did not succeed wholly. Then the wives decided they wanted their husbands one day when they would not be thinking, " What on earth is that clerk doing while I am gone? " and influenced them to close the store for at least a part of the day, and the result is that some of the stores are closed all day and some from 1 to 6, and I would like to say that every wife is worth what her husband loses in business Sunday afternoon if he closes that store. In our section we do not find it necessary that one store keep open each Sunday. Sunday afternoon closing has taught the people to rest and to prepare for Sunday on Saturday, and the morning trade on Sunday is ruined. There is, of course, some Sunday evening business. Emergency calls are not taken to drug stores as they once were. The wives have done another thing. By getting together they have become interested in their husbands' interests and are able to vary the monotony of the long store hours with retailing the conversation and happenings learned among the women.

The Chair then called for the paper by Mrs. J. M. Bladen on " The Sphere of the Druggist's Wife as Affecting Public Health " : " Women in Pharmacy," by Miss Ott, and " The Woman in Her Own Pharmacy," by Miss Frick.

In discussing Mrs. Bladen's paper the President asked for remarks.

Mrs. Howard: I think that possibly the thought of doing something to bring about a general interest in the state organizations in reference to this national movement would be advisable. It is almost impossible to create an interest in the national body unless there is some subdivision of states. If each state had a subdivision of this Section under the supervision of a vice-president in each state, and these subdivisions were used in the manner that political organizations are used, it seems to me it would be the best way to create a fuller and greater interest. The Exposition has detracted from the interest of this meeting, but at the same time there are many women in this national body who do not care for and are not interested in the Women's Section. I believe, from my experience in other club work, that the basis on which to work is the subdivisions of state organizations.

The President: Mrs. Howard, has it occurred to you that, relative to the state organizations, all the members of the state are not members of the American Pharmaceutical Association?. If we create interest among women whose husbands are not members of the American Pharmaceutical Association, how can we proceed?

Mrs. Howard: I would lobby among the men to join the American Pharmaceutical Association, and then I would lobby among the women to attend the American Pharmaceutical Association. I believe in this world that nothing will come to us without going after it.

The President: In my state—Utah—we have but five members of the American Pharmaceutical Association. We have a fine organization of women who attend the state convention and who would be perfectly easy to get into the national body, provided the men were members.

Mrs. Howard: If you have five men in Utah who are members of the American Pharmaceutical Association and who attend the state convention, those five wives should be interested in the Women's Section. If you get only one from each state you have a larger circle than you have to-day.

The Report of the Committee on Resolutions was read as follows and accepted.

WHEREAS, The long hours of service required of the proprietors and assistants in most of the pharmacies of the United States are a severe hardship and unnecessary burden, not only for those who are subjected to them, but also for their families; and

WHEREAS, A reform of this inveterate evil, in order to be effective, must come from the ranks of the profession; therefore,

Resolved, That we, Women's Section of the American Pharmaceutical Association, respectfully submit this subject to the Association for their earnest consideration, and urge the officers, Council, and members to promulgate a plan for betterment according to their wisdom, and institute a propaganda over the whole United States to bring about better conditions in this respect.

Resolved, That we earnestly request the Council to advocate and recommend the closing of pharmacies on Sundays, or part of Sundays, and encourage every effort and movement in this direction, believing that in small cities a concerted action will bring about the desired result, while in larger cities the division into a number of sections, each possibly requiring separate action, may be necessary.

Resolved, That the Secretary of this Section be instructed to forward a copy of these resolutions to the sections or committees of women in other pharmaceutical associations, with the request to coöperate with us in this movement.

Resolved, That we respectfully request the Council to have a copy of these resolutions forwarded by the official secretary to every state and local association in the United States, with the request for earnest consideration.

Resolved, That the women of the A. Ph. A. Women's Section desire to make it possible for the licensed members thereof to be able to exchange positions for stated periods, in order that they may be able to take advantage of educational facilities offered in other states, and at the same time be able to pursue their occupation, without being subject to the state boards of the various states; to be understood that such changes are but temporary; that the woman desirous of making the change is at the time employed by a reputable store or institution and has been a member of the American Pharmaceutical Association for at least two years, and has the personal endorsement of the President of the local branch, that such woman will report, both on assuming and quitting her duties, to the Secretary of the board who has afforded her the opportunity of carrying out her wishes. Also, that a practical yet comprehensive voucher be given to each one who, complying with the requirements, desires to take advantage of the opportunity.

Be it further resolved, That an earnest request for the passing of this resolution by both the Women's Section and the entire American Pharmaceutical Association be made, because it will surely broaden and make better each one's view of her life-work.

ST. CLAIRE RANSFORD-GAY.

Resolved, That we extend to the officers and committees of the Women's Section our keen appreciation and sincere thanks for their earnest efforts during the past year.

Resolved, That we extend to the chairman of the Executive Committee, Miss Zada M. Cooper of Iowa City, our grateful thanks and appreciation for her untiring effort in the preparation of the program of the Women's Section for this meeting.

Whereas, Our stay in San Francisco during the days of the Convention of the American Pharmaceutical Association has been one uninterrupted succession of surprises and enjoyment prepared for us by the generous hospitality and sacrificing friendship of the ladies of the California associations, their friends and the local committee, who by their loyal and unselfish devotion to our welfare and happiness have won our hearts and merited our everlasting thanks and appreciation; therefore.

Resolved, That we, the Section of Women of the American Pharmaceutical Association, hereby express our heartfelt thanks to our sisters of the Pacific Coast, and the various committees that planned and carried out these entertainments, thereby making us forget all cares and worries, and leaving in our hearts the sincere feeling of gratitude, friendship, and sisterly love for all time to come.

Mrs. John G. Godding, *Chairman,*
Mrs. W. C. Alpers,
Mrs. J. H. Beal,
Mrs. C. M. Snow,
Mrs. A. V. Pease.

Mrs. Phillip: I move that the Secretary send out to all of the families of American Pharmaceutical Association members in good standing women membership card saying, " You are a member because your husband is."

(The motion was carried.)

The President appointed the following on the Nominating Committee: Mrs. Fennel, Mrs. Godding, and Mrs. Howard.

The President: Miss Cooper has taken all the responsibility this year in geting together the program. It was an elaborate one, with many things to be discussed, and has entailed upon her part a great deal of work. I wish Miss Cooper would say something about what might be done to help the Women's Section this year.

Miss Cooper: I think I cannot say anything more than I said in the report of the Executive Committee. We must find some way to interest the women who are associated—the women of the families of the members of the American Pharmaceutical Association. I am free to admit that I do not know how to do that. In my work as member of the Executive Committee I wrote a great many letters and did not, in many instances, get replies, so that I am unable to say what the attitude is. Where I have been able to get an expression of opinion women seem interested. I feel that the women pharmacists want to know the non-professional women and feel the need of their acquaintance. We don't want to give up our acquaintance with other women because of our profession, and I know the professional women are very anxious to see this Section succeed on the basis on which it was originally established—both classes of women. But I have not come to a decision in my own mind as to any one particular thing it would be best to do. The suggestions which you have just heard made by other women as to what the Section can do, in every case I can heartily approve. I do not feel, however, that we should feel so very much discouraged when we consider how long we have been in existence and the small attendance there is sometimes at the other sections that have been working so many years. Perhaps we should not expect to interest everybody the first year. I think we cannot. One thing I do believe is that the women of the families do not understand as thoroughly and as well as they should what the intention of this Section is.

The matter of placing the meetings of the Women's Section on the program was discussed, and it was decided to leave that for the incoming officers to work out. The meetings should be timed so that the sessions would not conflict with any other sessions to prevent the professional women attending. Also the room for holding the meetings should be definitely decided upon.

The Nominating Committee reported as follows:

Honorary President: Mrs. F. C. Godbold, New Orleans.
President: Mrs. G. D. Timmons, Valparaiso, Ind.
First vice-president: Mrs. W. Bruce Phillip, Fruitvale, Calif.
Second vice-president: Mrs. E. A. Ruddiman, Nashville, Tenn.
Third vice-president: Miss Jean Gordon, Chicago, Ill.
Secretary: Miss Anna G. Bagley, Columbus, Ohio.
Treasurer: Mrs. W. B. Day, Chicago, Ill.
Historian: Miss Bertha Ott, Cincinnati, Ohio.
Member Executive Committee: Miss Clarissa M. Roehr, San Francisco.

The Secretary was instructed to cast the ballot for the nominees.

The President: Is there any further business to come before this Section at this time? If not, we will stand adjourned.

Miss Cooper: I would like to move that we again express our appreciation of what our President has done by a standing vote. (The members rose in response to the vote.)

The President: May I wish you all a pleasant time at the Exposition, a pleasant year, and express the hope that I may see you again at the next convention. I thank you for your assistance at this convention. Adjourned.

THE PHARMACIST AND PUBLIC HEALTH.*

BY MRS. G. D. TIMMONS.

The training of the pharmacist eminently fits him to be a potent health factor in the community. This special training gives him definite knowledge concerning the compounding of drugs and skill in their identification. If the doctor sent *all* of his prescriptions to the pharmacist and the pharmacist, in turn, insisted upon a prescription from the doctor, each would be doing the work for which he was trained and, at the same time, conserving public health.

Outside of his professional line of drug merchandise, the pharmacist gives *special* thought to securing such other stock as has to do with the health and comfort of his community. Toilet articles, everything that cleans and purifies, as paints, oils, varnishes, wall-paper, etc., and particularly germicides and insecticides, do much to promote the public health. Side-lines should not lower the dignity of the pharmacist. Unscrupulous is a word that should *never* be used with reference to the pharmacist and seldom is, for he usually prefers to carry any side-line that is at all suitable in a drug store, rather than doubtful patent medicines, etc. A drug, good for every ailment, is not often seen advertised, except by "quacks." The pharmacist advertises his side-lines mainly, leaving his drugs to be sold only as the doctor prescribes. The elimination of spirits and narcotics from the pharmacist's sales, except as prescribed, scores for public health as well as for ethics.

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* Read before Women's Section, A. Ph. A., San Francisco meeting.

Pharmacists are demanding a standard price. A "cut price" usually means a less pure article. Pure drugs are now easily obtainable, and the "up-to-date" pharmacist uses the best, and if they are drugs which deteriorate, he buys in small quantities to insure freshness. The suggestion often given to the housewife to buy her spices at the pharmacy speaks well for the purity of drug-store products.

The pharmacist strives for elegancy in pharmacy, and *this*, with the background of cleanliness and order, not omitting his own person, stands for right living in the community. His store thus becomes an object lesson in sanitation. The same rules could be observed in our markets and groceries with splendid results.

It is deplorable that, while the pharmacist's motto is to serve others well and aid in health, his long hours and close confinement have often made him a prey to ill health. We are gratified to know that legislation is beginning to take care of this wrong.

People are getting away from the old idea that they must have drugs for everything; rest, dieting, adjustment and prevention are oftener considered. A periodic health examination has now been suggested. The progressive pharmacist may keep abreast of the times and maintain his high profession as a public health benefactor by being a good analyst or a bacteriologist. A little laboratory, fitted up for some special work, is a valuable addition to any store, and every pharmacist may feel well repaid for being a good chemist in the added ability for service. Vaccines, serums, anti-toxins, etc., are well worth understanding thoroughly. The pharmacist will always be in demand to render first aid in emergency cases, and here his professional training is of vital importance to the public health.

The world will always need pharmacists, but their activities will be changed as science advances. The attendance at educational meetings and the interest taken show that the pharmacist realizes the advantages of keeping in touch with scientific advancement.

Women have long looked to the health of the home; they are now going outside of it to get at the causes of disease, thereby safeguarding the home. Hence we are keen to appreciate the pharmacist's exalted place in this great movement for public health. We trust that every pharmacist realizes, as we have assumed that many do, the great privilege that he has, by virtue of his profession, to conserve the health of the community.

VALPARAISO, IND.

SECTION ON HISTORICAL PHARMACY, AMERICAN PHARMACEUTICAL ASSOCIATION

EAST INDIAN VOYAGES OF THE SIXTEENTH AND SEVENTEENTH CENTURIES IN THEIR RELATION TO DRUGS, SPICES AND DYESTUFFS.*

BY ARTHUR W. LINTON.

SPANISH VOYAGES.

While many important drugs were added to our materia medica as a result of Spanish explorations in the Western Hemisphere, it is not within the scope of this paper to discuss these. Hence no more than incidental reference will be made to Spanish voyages to the Americas. We should not lose sight, however, of the fact that it was a search for the Indies which first took the Spaniards to America. Columbus started on his first voyage, not in the expectation of finding continents between Europe and Asia, but confident of discovering a direct route to Cathay.

In 1493 Pope Alexander VI divided all of the lands that had been or were to be discovered between the crowns of Spain and Portugal. The dividing line was a meridian passing through a point 100 leagues west of the Cape Verde Islands; the Spaniards were to have all between this point and another 180 degrees to the westward; the remainder was to belong to the Portuguese. By a convention between the two countries it was agreed to move the line 270 leagues to the west of the point designated by the Pope, also that each party should be free to sail in the seas belonging to the other, but that neither should attempt to trade outside of his own dominions. (Purchas, ii, pp. 64–65.) Possibly the bull and the convention would have been sufficient to avert misunderstanding, had men been able to measure longitude accurately in those days.

It will be remembered that the Portuguese had found the source of cloves to be the Molucca Islands and that of nutmegs the Bandas; both groups well to the eastern part of the Indian Archipelago. Spain was soon to cast longing eyes toward the islands which produced such coveted spices. In Purchas we find the following extract from an old record: "Fernandus Magalianes, a Portuguese, having made proof of his valour in Africa and India, being rejected in a suit to the King, conceiving deep indignation, renounced allegeance to King Emanuel, and went to the Court of Castile, where he acquainted the King of Spain that the Islands of Banda and the Moluccas appertained to him by that division which John II and King Ferdinand had agreed on . . . offered to discover these rich islands of spicerie from the west."

The King, apparently quite willing to believe that the coveted islands belonged to him, agreed to fit out an expedition. Magellan left Seville in August, 1519, with five vessels. One of Magellan's officers was Duarte Barbosa, a Portuguese who had spent several years in the Indies, and who, in 1516, had written his "Description of the Coasts of East Africa and Malabar," which is still one of our most reliable sources of information as to conditions in the Portuguese Indies in the early sixteenth century. The squadron sailed to Brazil and followed down the coast, spending five months at Port St. Julian, in Patagonia. Here mutiny broke out among the Spanish crews, and Magellan hanged and quartered the ring-leaders. The daring commander, on the flagship *Victory*, led the way through the terrible straits which have since borne his name. The mariners suffered dreadfully from cold and exposure, many members of the crews perishing during the passage. The Mare Pacificum was sighted November 28, 1520. Shortly after the open sea was reached one of the vessels stole away and returned to Spain.

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* Continued from p. 380, April issue.

Terrible experiences still awaited Magellan and the little company who went on. During the long voyage across the Pacific all of their drinking water "putrefied," and all of the food was consumed. They were reduced to the extremity of eating leather which had been dragged in the sea four or five days to soften it. In March, 1521, they reached an island, probably one of the Philippines; at least they visited a number of the islands of this group and spent some time on Cebu. On one of these islands Magellan was killed in a skirmish with natives. Duarte Barbosa became commander for a time, only to be killed himself.

Search was continued for the Moluccas. A call was made at Borneo, where the Spaniards found camphor, cinnamon, ginger, myrabolans, oranges, lemons, sugar, curcuma, and melons. In November, 1521, Tydore, in the Moluccas, was reached. The natives were friendly and exchanged cloves for quicksilver, glass cups, and red cloth. A treaty was made, and the King of Tydore sent presents to his royal brother of Spain. Leaving the Moluccas, the Spaniards visited Timor, where they found white saunders (sandal-wood) and ginger.

The *Victory* alone completed the circumnavigation, reaching San Lucas, near Seville, September 7, 1522. (Purchas, ii, pp. 84–119.)

Another Spanish expedition under Villa Lobas was despatched to the Moluccas, and others followed. The Spaniards established trading stations. The Portuguese, however, did not intend to divide the rich trade of these islands with another nation. A party of Spaniards was captured and taken to Goa, where they were treated kindly and sent to Spain. (Purchas, xii, pp. 142–143.) For a number of years the two nations quarrelled and fought. Each maintained that the Moluccas fell within the dominions granted it by the Pope, and each party had maps to prove the justice of its claim. (Hakluyt, ii, pp. 174–176.)

The Spaniards continued to send expeditions to the Moluccas from New Spain (Mexico). The natives allied themselves alternately with Spanish and Portuguese. Every new Portuguese commander came with orders to drive out all intruders. The strife between the two nations was ended only when the Emperor Charles V, in 1529, sold to Portugal his claim to sovereignty of the islands. The price received is variously stated at from 35,000 to 350,000 ducats. (Tschirch, p. 732; also, Motley, iv, p. 246.)

So intent had the Spanish been upon securing a portion of the Molucca trade that apparently for a time they neglected the Philippines, some of which Magellan's expedition had explored before reaching the Moluccas. In 1566 an expedition sent out from New Spain, under Lopez de Legaspi, further explored the Philippines, baptized some of the natives, and laid the foundations of the city and fort of Manila. This city continued to be the centre of Spanish influence in the East, and came to be much resorted to by merchants from China, who brought musk, silk, and porcelain. Every year ships went from New Spain to bring the products of the islands and those obtained by commerce with China. (Purchas, xii, pp. 147–153.)

The Spaniards also sent an expedition from Peru, which, sailing far into the

South Pacific, discovered a group of islands exceedingly rich in gold, and producing also cloves, ginger, and cinnamon. Supposing these to be the islands from which King Solomon obtained the gold to build his temple, the Spanish named them the Solomon Islands. It was planned to colonize this group, but Drake's circumnavigation led the Spaniards to conclude that a colony there would probably be plundered by English expeditions. (Hakluyt, xi, pp. 287–290.)

DUTCH VOYAGES.

We have seen that during the sixteenth century Europe's supply of spices came around the Cape of Good Hope in Portuguese carracks. This traffic made Lisbon the most important commercial city of Europe. Her docks and warehouses were piled high with all of the aromatic products of the distant East. The transportation of these wares to the various distributing centres of northern Europe the Portuguese left to other nations. The Venetians, in their era of prosperity, proud to be merchants as well as conquerers, had increased their profits on the spice trade by sending trading vessels to French, Flemish, and English ports. The haughty Portuguese apparently considered such traffic a matter too small to merit their attention.

During the sixteenth century the carrying trade between northern and southern Europe had passed almost entirely into the hands of the Hollanders. The discovery of the sea route to India had greatly benefited the cities of the Netherlands, especially Antwerp and Amsterdam. Motley, with his rare ability, paints a graphic picture of the commerce of Holland at this period. "The nations of the Baltic and of farthest India now exchange their products on a more extensive scale and with a wider sweep across the earth than when the mistress of the Adriatic alone held the keys of Asiatic commerce. . . . In Holland, long since denuded of forests, were great markets of timber, whither shipbuilders and architects came from all parts of the world to gather utensils for their craft. There, too, where scarcely a pebble had been deposited in the course of the geological transformations of the planet, were great artificial quarries of granite, of basalt, and of marble. Wheat was almost as rare a product of the soil as cinnamon, yet the granaries of Christendom and the magazines of spices and drugs were found chiefly on that barren spot of earth. There was the great international mart, where the Osterling, the Turk, the Hindoo, and the Atlantic and Mediterranean traders stored their wares and negotiated their exchanges. . . ." (Motley, "United Netherlands," iii, pp. 544–545.)

The group of States which in the sixteenth century comprised the Netherlands consisted of 17 provinces, which we may consider in three groups: the Walloon provinces next to France, the central or Flemish provinces corresponding approximately to modern Belgium, and Holland, which included most of the coast States. The entire group was united under the States-General, but the power of this body was subject to that of Spain, of which the Netherlands was a tributary.

In 1567, unable longer to remain submissive under the intolerable rule of Philip II, the Netherlands commenced that struggle which, in spite of internal dissensions and numerous crushing defeats, was finally to yield them their independence.

It may, at first thought, seem remarkable that for many years of the time during which the States and Spain were locked in this bitter struggle commerce between the two countries went on with apparently little interruption. The explanation is found in the fact that the two were mutually dependent. To build and equip the fleets which Spain was sending to her over-sea dominions, as well as against Holland itself, Spain needed timber, tar and other naval stores which the Dutch ships brought from the Baltic ports. She also needed the grain and provisions of which the Hollanders were chief distributers. As for Holland, she was forced to buy and sell wherever trade was to be had. Whatever prosperity the Netherlands enjoyed at that period was built upon commerce. No more than Venice could they be prosperous if shut off from the world's markets. However, this condition of affairs was radically changed soon after the union of the crowns of Spain and Portugal in 1580. Philip now decided to strike a blow at the Dutch by destroying their commerce. Since William of Orange out-generalled his best generals, and the sturdy burghers outfought the Spanish infantry, at that time considered the finest troops in Europe, Philip would bring them to time by starving them. He forbade Dutch vessels to trade in ports of Spain or Portugal. This order meant to the merchant whose ship went to Spain loss of the vessel by confiscation; to the crews it meant prison and the Inquisition.

Sir Walter Raleigh mentions this action of Philip's as one of the five reasons for the "upgrowing of the Hollanders and Zealanders," . . . "and the fifth; the embarging and confiscating of their ships in Spain, which constrained them, and gave them courage to trade by force into the East and West Indies, and in Africa, in which they employ one hundred and eighty ships, and eight thousand seven hundred mariners. The success of a counsel so contrary to their wisdom that gave it as all the wit, and all the force the Spaniards have, will hardly, if ever, recover the damage thereby received." (Sir Walter Raleigh, "The Invention of Ships," in Old South Leaflets, vii, p. 309.)

The situation was a serious one for the Netherlands, especially for the maritime provinces. Not only had Holland at this time the largest merchant marine that had ever been known, but a larger proportion of the population were mariners than had been the case in any nation up to that time. (Motley, iii, p. 546.) Now she found herself denied the carrying trade of the greatest power in Europe, denied the distribution of the products of the East and West Indies which all the world was demanding. It was not strange, then, that the Hollanders turned their thoughts to the possibility of a direct commerce with the Indies, which, in spite of their splendid merchant marine, they had never yet attempted. It is a curious fact in regard to the Portuguese control of the East Indian traffic during the sixteenth century, that the other nations seem to have tacitly acknowledged their title to the Cape route by right of discovery. Because they had blazed the trail, they had a certain claim to the exclusive use of it.

However, if the exclusive right to a sea route was granted, the Protestant nations, at least, did not admit the right of a Pope to divide the Indies between Spain and Portugal, as Pope Alexander VI had done. Holland and England both believed that if they could only find a way of their own to Cathay and the Indies, for instance by a northeast or a northwest passage, they would have a perfect right to trade with those countries.

Any scruple which the Dutch may have entertained in regard to the propriety of using the Portuguese route was removed when Portugal came under the dominion of their arch-enemy, especially since he had forbidden them his ports. There was just one remaining reason why the Dutch did not at once follow the Cape route; namely, they did not know the way. This route was never used until the English voyage of 1591, except by the Portuguese. The Portuguese had a thorough knowledge of the route, accumulated by long years of experience in following it, but this knowledge they had jealously guarded.

For this crisis in the affairs of the Dutch a man had been in training. Jan

Huyghen van Linschoten was born in Haarlem about 1563. At the age of sixteen he went to Seville, in Spain, to join two brothers who had been there for some years. In 1563, impelled by a desire for travel and adventure, he joined himself to the Portuguese Indian fleet. While on the outward voyage he was fortunate in receiving an appointment to the suite of the Archbishop of Goa, who was a passenger on the same ship. Jan remained in the service of this dignitary for five years, at the end of which time the Archbishop left for Europe, expecting to return to Goa. However, he died on the voyage, and, hearing of this, which meant that his own prospects for advancement in India were destroyed, Jan decided to return to his native land. He spent two years in the Azores, finally arriving in Holland in 1593. In 1595 and 1596 an account of Linschoten's voyage to the East Indies appeared in print. This work proved to be a storehouse of information for all who were interested in the Indies, and was exactly what the Dutch needed. Linschoten had recorded his observations of the social, political, and religious institutions of the native races of India, as well as those of the Portuguese who had established themselves there. He wrote with accuracy of the plant and animal life and of the physical and political geography. He described the commercial products and discussed markets and means of transportation. Most important of all, perhaps, to the Dutch, was the information he gave in regard to routes from Europe to India and to all parts of the Indian Archipelago. He included notes on winds, currents, shoals, and harbors. His work was for the scientist, the merchant, the navigator. It would be difficult to overestimate its importance in stimulating and assisting the Dutch in the work they were about to undertake. (Jan Huyghen van Linschoten, from English translation of 1598, H. S., Introduction; also, Motley, iii, pp. 547–548.)

Before considering the East Indian voyages of the Dutch, we should note the efforts they made to find a route all of their own to Cathay and the Spiceries. Linschoten himself and other Dutch geographers and navigators believed that the northeast route would cut 10,000 miles from the long journey to the East. The first expedition, in 1594, reached Nova Zembla and thoroughly explored and charted its coast. In 1595 a second expedition was fitted out. So confident were the promoters that this one would be successful that a stock of articles for barter in China was carried. The only products brought back were a quantity of pebbles considered to be "a kind of diamonds." A third expedition of two ships, manned by carefully selected crews, sailed in 1596. One ship's company wintered at 76° N. The effort spent on these expeditions was not entirely wasted, for on all of them accurate astronomical, geographical, and meteorological observations were made. (Motley, pp. 572–578.)

The first Dutch expedition to attempt the Cape route consisted of four vessels: the *Maurice, Holland, Amsterdam,* and a pinnace, under the command of Cornelius Houtmann. Leaving the Tessel in April, 1595, the Stormy Cape was sighted just four months later. Since cloves, nutmegs, and mace were more valuable than pepper and ginger, Houtmann directed his course to the islands of the Far East. We read that they reached Sumatra in May, 1596, and in June passed through the Strait of Sunda, between Sumatra and Java. By this route they avoided the Straits of Malacca, the narrows of which were guarded by the Portuguese fort at the city of Malacca. Nevertheless, the Dutch vessels did not escape the notice of the Portuguese, for we learn that on July 6 the Dutch were warned of a plot to destroy them. The principal officers were to be invited to a feast given by a certain Javan prince, and during their absence the Portuguese were to spoil the ships. In December they reached Tuban and Cydaia, and purchased nutmegs and cloves. Here they had another evidence of Portuguese hostility in an attack by natives instigated by the Portuguese. The expedition reached home in August, 1597. So heavy had been the losses from scurvy that the ship *Holland* did not have enough well men to weigh the anchor. (Purchas, v, pp. 196–201.)

This first expedition had lost heavily in men, but at that time, as later, human life was held cheap when great commercial gain was in prospect. Dutch ships had brought spices directly from the East Indies, and men, money, and ships for another venture were not lacking. Within a few months after the return of the first voyage a fleet of eight vessels was on its way. In December, 1598, three of these rode in Bantam harbor. (Bantam is at the extreme western end of the Island of Java. In the sixteenth and seventeenth centuries it was a very important pepper market.) The other five ships arrived later, reporting 35 dead and many sick among their crews. The Bantamites welcomed the Dutch and ejected the Portuguese factors. The thrifty Hollanders were delighted to find that for one pewter spoon they could purchase in Bantam enough food to supply a man for a week. In 1599 four ships of the fleet were laden with pepper and started homeward; the others went on in search of cloves and nutmegs. Their full itinerary is not available, but we know that two of them reached Banda and bartered there for nutmegs and mace. All were home by April, 1600. (Purchas, v, pp. 201–205.)

The Dutch were not satisfied with making trial of only one route to India, but in July, 1598, started a fleet of four sail, under Oliver van Noord, to make the voyage by way of the Straits of Magellan. We have learned of the discovery of this route by Magellan on his voyage of circumnavigation; since then it had been used not only by the Spanish but by an English squadron under Drake in 1577, and a second under Cavendish in 1586. The chief pilot of the Dutch expedition was Captain Melis, who had made the voyage with Cavendish. Having accomplished the dangerous passage through the Straits, van Noord ran off the South American coast at St. Iago (Valparaiso) and captured two Spanish vessels. Striking across the broad Pacific, the fleet touched at the Ladrone group, and later reached the Philippines. At that time the Spaniards sent every year from New Spain (Mexico) great carracks to bring silk, gold, and spices from the Philippines. Van Noord found two of these vessels in Manila harbor, and there ensued a battle in which one ship of each flag was sunk. The Dutch traded for mace at Jurtan and for pepper at Borneo, sailing home by way of the Cape of Good Hope. (Purchas, ii, pp. 187–206.)

To return to the Cape route and the fleets which followed that way to India: Not waiting for the return of the second voyage, the enthusiastic Hollanders fitted out two other expeditions, one of three ships and one of four. Several companies were organized, and other ventures followed one another at intervals of a few months. In 1601 a fleet of 13 vessels sailed from Amsterdam. Between 1595 and 1601 46 ships were sent to India by the Dutch, of which, in due time, 43 returned richly laden. (Purchas, v, p. 227.)

Up to this time the Indian ventures had been free to all associations of Dutch merchants, but this was not to continue. Holland, in the opening years of the seventeenth century, was to give birth to a monopoly which grew to compare in size with the great ones of the early twentieth century. Very soon after the Dutch commenced to trade with the Indies the complaint began to be made by merchants that spices were becoming too cheap in Europe. Possibly some of the thrifty Dutch housewives were pleased that this was the case; if so, they seem to have had no voice in the action which followed. Probably their " Consumers'

League" was not well organized. Although the desire of the merchants to maintain prices was one of the factors which was working to cause a union of the companies, there was another and more important reason. The nation understood that the Indian fleets must be able not only to defend themselves against the efforts already being made by Spain to sweep them from the seas, but they must be prepared to strike back and to strike hard. To capture a spice-laden carrack meant not only cargoes for the Dutch galeots; it meant also a blow at Spanish power. The States-General had no ships to spare to send to distant seas; the merchants must have an organization of their own, powerful enough to provide not only ships and sailors, but guns and fighting men as well.

On March 20, 1602, the States-General granted to the Universal East India Company a charter conferring the exclusive right to trade to the eastward of the Cape of Good Hope, and to sail through the Straits of Magellan. The capital stock was 6,600,000 florins. The company was given power to make treaties with Indian princes in the name of the States-General, to levy troops, and to build forts. Of the value of the prizes captured from the enemy a certain percentage was to go to the Admiralty. (Motley, iv, pp. 132–135.) Before the end of the year the company's first fleet, consisting of 14 vessels, under Admiral Wybrand van Warwyck, was *en route* to the Indies. These were more than simple merchant ships that sailed from Amsterdam and Rotterdam during the first years of the seventeenth century. Built as they were to carry merchandise, they could be, and frequently were, transformed to ships of war on very short notice. Many of the captains had seen service by land or sea in the wars with Spain. Every Zealand fisherman who shipped for the Indian voyage knew that he might be called upon to fight to protect the cargoes of his company, or to win other cargoes at push of pike and thrust of sword. We have already noted van Noord's battle with the Spanish in Manila Bay; other fights followed in rapid succession. Armadas were despatched from Spain to protect the factories scattered through the Indies, as well as the richly-laden carracks with their great cargoes of pepper and cloves, musk and ambergris.

In 1601, Jacob Heemskerk, while bartering with the King of Jabor on the Malay Peninsula, was informed of the approach of a Portuguese carrack from Macao. The carrack was manned by a crew of 700 or more, while Heemskerk's two small craft had together only 130; but he did not shrink from the encounter. After a short conflict Heemskerk was able to divide booty amounting to over 1,000,000 florins among the members of his crews. The spoils of battle included silk, sugar, cotton, and musk. (Motley, iv, p. 108.) In 1602, Spilberg, a Dutch commander who had recently been entertained by the King of Ceylon, "to gratify the King," fought and captured three Portuguese ships and gave the captains to the King. Spilberg was the first Hollander to trade to Ceylon for cinnamon. Wolfert Hermann, the commander of five small vessels, encountered near Bantam an armada commanded by Andreas Hurtado de Mendoza, who had been commissioned to purge the Indian seas of the Dutch traders, and to chastise the natives who had dared to hold commerce with them. Hermann's squadron was hopelessly outclassed, since Mendoza's vessels numbered 25 or more, and his flag-ship alone was superior in weight and armament to Hermann's combined force. The Dutch, although they did not dare to come to close combat, harried the armada for three days, capturing two vessels and sinking and driving ashore a number of others. Mendoza considered it prudent to leave these antagonists, and found less dangerous ones in the natives of Amboyna, whose villages and spice groves he destroyed. (Motley, iv, pp. 106–107.) The King of Bantam might well greet the Dutch as his deliverers. In Bantam was established the first factory of the Hollanders, and near this vicinity were laid the foundations of the city which eventually became the capital and metropolis of their colonial empire. "Not many years later, at the distance of a dozen leagues from Bantam, a congenial swamp was fortunately discovered . . . and here a town, duly laid out with canals and bridges and trim gardens and stagnant pools, was baptized by the ancient and well-beloved name of Good-Meadow, or Batavia, which it bears to this day." (Motley, iv, p. 107.)

Many other naval battles between Hollanders and Portuguese might be mentioned. In every sea the contest was waged; wherever the hostile ships sighted each other the red flag went to the mast-head and the merry conflict commenced. The Dutch were usually inferior in numbers of ships and men, as well as in the weight of ships, but in the majority of cases they were victorious, or at least inflicted a much greater loss than they suffered. Nor was this due wholly to superior bravery on the part of the Hollanders. The Dutch galeots, vessels of from 100 to 200 tons, at this period, broad, bull-nosed, and clumsy as they would appear to-day, were the best sailing craft of their time. The Spanish carracks, some of them 500 to 1000 tons or even larger, were slow, topheavy, and even more unwieldy than the galeots. The latter could sail all around the carracks, could fight from any range or angle they desired, and frequently had their adversaries in a position in which they could not use a single gun. Hermann won his battle against great odds, just as many another Dutch commander did, by outsailing and outmanœuvring his antagonist. (Motley, iv, pp. 106–107.)

The Dutch were not satisfied to whip the Spaniards only on the sea, but within a few years after their first voyage were bombarding and taking by storm the Portuguese and Spanish forts all over the Indies. They devoted their energies especially to reducing the strongholds of the enemy in the Eastern Archipelago. We have seen them established at Bantam. They soon held forts at Jahore (Malay Peninsula), at Achin (in Sumatra), and on Amboyna (one of the larger Molucca group). From the first the true Moluccas, comprising Ternate, Tydore, Motiel, Makian, and Baera, were a bone of contention. For centuries before the Europeans came, Chinese, Malays, Persians, and Arabs had fought for these "Clove Islands." The Portuguese had established themselves here in 1512, but, as we have seen, soon had to maintain their title against the Spaniards. Not until Charles V sold his title did strife between Portuguese and Spaniards cease, and now the Dutch had arrived to cause further trouble. The King of Ternate had willingly submitted himself to the Dutch; Tydore remained loyal to the Portuguese. In 1605, Cornelius Sebastian, with some assistance from the Ternatans, undertook to storm the castle of Tydore. It was bravely defended by the Portuguese, but the explosion of the magazine at a critical moment in the conflict almost ended Portuguese resistance. There was an English fleet in the harbor at the time. The English claimed to be neutrals, but were accused by the Dutch of having furnished ammunition to the Portuguese. ("Voyage of Sir Henry Middleton," H. S., pp. 50–58.)

In 1607 the Spanish sent a force from the Philippines which secured control of the Moluccas, only to be dispossessed by the Dutch under Matelieff. In these contests between the various European nations for the control of the Moluccas and their cloves the poor native, like the "innocent bystander," always suffered.

Motley's comment on the wars and dissensions, caused by the apparently inoffensive clove, cannot fail to interest: "The world had lived in former ages very comfortably without cloves. But by the beginning of the seventeenth century that odoriferous pistil had been the cause of so many pitched battles and obstinate wars, of so much vituperation, negotiation, and intriguing, that the world's destiny seemed to have almost become dependent upon the growth of a particular gillyflower." ("Gillyflower," an old name for the clove. French name of to-day is *girofle.*) "Out of its sweetness had grown such bitterness among great nations as not torrents of blood could wash away. A commonplace condiment enough it seems to us now, easily to be dispensed with, and not worth purchasing at a thousand human lives or so the cargo, but it was once the great prize to be struggled for by civilized nations." (Motley, iv, p. 245.)

Somewhat later in their Indian career, finding it impossible to completely control the output of cloves from the Moluccas, the Dutch adopted the policy of introducing the tree into Amboyna and some other islands which were securely under their control, and extirpating it from the Moluccas. This policy seems to have been successful in giving them the monopoly. The clove tree is not found to-day in the Moluccas. (Flückiger and Hanbury, p. 283.) Tavernier, in the middle of the seventeenth century, found that the Dutch clove monopoly was not absolute, because the Dutch factors surreptitiously traded it to native merchants for rice and other merchandise. Tavernier, who was prejudiced against the Dutch, says that the factors were so miserably paid by their company that they were forced to follow such practices in order to subsist. (Tavernier, ii, p. 16.) In the case of the tree (*Myristica fragrans*) which produces nutmegs and mace, the Dutch made determined and persistent efforts to restrict it to the Banda Islands. In order to prevent propagation elsewhere, they early introduced the practice of immersing the kernels in milk of lime for three months. It was later discovered that the exposure of the kernels to sunlight for a week would have accomplished the same purpose. The Dutch are said to have frequently carried in stock at Amsterdam the entire nutmeg crop of 16 years. (Flückiger and Hanbury, pp. 504–505.) We find in 1620 one of the English captains writing to this company that the Dutch had forced the natives of Poolorom to present them with a nutmeg tree planted in a basin of the earth of the island, this symbolizing that the island and its products were to belong to the Dutch. ("Calendar of State Papers," Colonial East Indies, 1617–1621, p. 423.)

The Dutch seem also to have early secured a monopoly over cinnamon, at least over Ceylon cinnamon, produced on the island of that name. Tavernier tells us that in the middle of the seventeenth century it all came from Ceylon, and, further, that in the season of cinnamon harvest the Dutch were obliged to use 1500 or more armed men to guard the natives who gathered it. The guard, which was necessary because of the hostility of the King of Kandy, greatly increased the cost of the cinnamon. (Tavernier, ii, p. 18.)

Batavia, the capital of the Dutch Indies, grew to be a great and flourishing city. By reason of the grandeur of its buildings, wealth of its inhabitants, and vast extent of its commerce, it came to be called the "Queen of the East." François Leguat, who visited the city near the close of the seventeenth century, nearly 100 years after the Dutch first rounded the Cape, has given us a description. He tells us that it was built of white stone and that the streets were fine and beautiful. Like all well-regulated Dutch cities, Batavia was intersected by canals. A strong citadel, mounting 60 pieces of artillery, was garrisoned by a thousand men. The population was a cosmopolitan one, including, besides Dutch and Javanese, French, German, Portuguese, Chinese, and Moors. The city was the centre of all Dutch activities in the Indies, both political and commercial. The General or President was absolute in authority. Unlike the Portuguese viceroys, he held office for life. Roman Catholics were allowed freedom of conscience, but not the privilege of public worship. ("Voyage of François Leguat," H. S., p. 221.)

Jean Baptiste Tavernier, a French diamond merchant, about 1649 made the homeward voyage from Batavia in one of the Dutch East India Company's vessels. He has left us one of the best descriptions of a voyage of this period.

Shortly before the departure of the vessel from Batavia it was visited by the Surgeon-general, whose business it was to make sure that no servant of the company was going home for medical treatment who could be cured in Batavia. Another inspection was made by a military officer to make sure that no soldier was going without leave. After a run of 54 days the vessel arrived at the Cape, and, as was the custom, made a stay of several weeks for refreshment. The Dutch maintained a fort and a village at this place. Any soldiers or sailors who were willing to remain were allowed to do so, as the policy was to build up a strong settlement here. The natives brought for barter cattle and young ostriches; the latter were purchased as delicacies for the sick. The Hottentots, degraded as they were, Tavernier says, had a knowledge of simples, and were able to cure 19 members of the ship's company who were afflicted with ulcers and wounds. The sailors were allowed to go ashore in parties, those with a record of good behavior being given the first opportunity.

The next stop for refreshment was made at St. Helena, in the South Atlantic, afterwards famous as the prison of Napoleon Bonaparte. The run from the Cape to St. Helena, Tavernier tells us, was looked forward to by the sailors with much pleasure, since the winds were nearly always favorable and steady; hence there was no necessity for changing sail. Immediately on arrival at St. Helena all hands were employed for two days in scraping the hull. This being completed, the crew was divided into two parties, each of which in turn was sent ashore for 11 days for rest and refreshment.

In those days of long voyages, when canned and preserved fruits were almost unknown, and refrigeration had not been dreamed of, these long stops were necessary to prevent and to cure scurvy. Even with this precaution, few voyages to the East Indies were made at this period without some deaths from this dread disease; in some cases a large percentage of the crew was lost.

Tavernier tells us that the party ashore, having killed wild pigs and gathered sorrel which grew there, cooked the pork and sorrel, together with rice from the ship, to make a kind of soup. This soup was an important article of diet during the stop at the island, and acted as a gentle purge. (Various species of oxalis are known as "sorrel." The leaves of the sorrels contain potassium binoxalate, and have been used as anti-scorbutics.) The men on shore were required to send some of the wild pigs to the vessel every day. Those on the ship were employed in catching fish for use on the remaining portion of the homeward voyage. Not only the crew, but the pigs, sheep, geese, ducks, and chickens on the ship were sent to have a touch of shore life and a diet of sorrel. The beasts and fowls became so fat that it was impossible to eat them on the way home.

A serious difference arose between the crew of the vessel Tavernier was on and that of another Dutch vessel which had reached the island a few days earlier. The seamen of the first vessel had gathered all of the limited supply of lemons found on the island, and had locked them in their chests. Since lemons were then as now regarded as one of the best remedies for scurvy, this attempt of one ship's crew to monopolize them was a serious matter. The commander of Tavernier's vessel, who ranked as vice-admiral, threatened to hang some of the offenders if the lemons were not disgorged. The sailors thought it wise to do so.

While the Dutch were at St. Helena, two Portuguese ships arrived from the Guinea coast with slaves for the mines of Peru. Some of the Dutch sailors, being familiar with the dialect of the Africans, found opportunity to tell them of the fearful treatment they might expect in Peru. A number of the slaves ended their misfortunes by jumping into the sea.

Leaving the island, the vessels sailed for three days through great beds of sargasso (*Fucus natans*). Tavernier erroneously speaks of the vesicles or floats as fruits. The homeward route was apparently by rounding the north of Scotland. While in the North Sea the voyagers were met by vessels which had been watching for them, and which brought them very welcome supplies of smoked meats, butter, cheese, biscuit, and beer. As the Indiamen ran through a fleet of herring fishers they traded spices for fresh herring.

Before land was reached the officers of the vessels met in council and passed judgment upon those members of the crews who had committed offences against discipline during the voyage. Two were sentenced to be hanged, a number of others to minor punishments. The sentences were executed before land was reached in order that there might be no appeal.

Many of the Dutch soldiers had participated in an attack upon the Philippines. Here they had pillaged some convents, and among other booty had secured a great number of wax candles. Now, as the vessels neared the coast of the homeland, a great number of these were lighted, producing, as Tavernier describes it, a remarkable illumination.

Members of the ship's companies were not allowed to carry their chests ashore. The latter were all sealed and carried to the house of the India Company, there to be examined by an official. This was one of the means adopted to prevent private trade. (Tavernier, ii, chapters xxvii to xxix.)

(*To be continued.*)

CO-OPERATION VS. INDIVIDUALISM.

Through the history of the past runs a dominant chord, namely, the efforts of man to bring about a state of equilibrium between the rights of the individual and those of the social whole. The nineteenth century was pre-eminently the age of individualism, and that individualism, carried to excess, brought about a social and industrial condition against which the prophets of the age, men like Thomas Carlyle, Ruskin, Hugo and Tolstoi, thundered. It was the epoch of machinery, of ultra-Darwinism, the effects of which hang like a black pall over the people of the present epoch. The twentieth century represents the subordination of the individual to group control; the greatest good for the greatest number. The spirit of co-operation is in the air, of brotherhood. Despite the ravages of the great war in Europe, humanity will arise phœnix-like from its ashes, and the torch of liberty will be carried forward again. In the field of education this subordination of the individual to the group is plainly seen, leading directly "to wider opportunity for the masses of the people to rise above their former level."

—*New Age.*

ANIMAL DRUGS USED IN MEDICINE DURING THE MIDDLE AGES IN ENGLAND AND FRANCE.*

BY GEORGE G. MARSHALL.

Pharmacy in the Middle Ages, especially in Great Britain, has an extremely curious history. The whole subject is so closely bound up with the social progress of the country, that one finds himself perusing the annals of history for a better understanding of the art of mixing and compounding.

The successive invasions of the Angles, Saxons, Jutes and Danes, together with the Roman occupation of the country, had a most important bearing upon the subsequent social development. The Saxons, for instance, introduced a wealth of quasi-scientific learning into the land, while the Romans, in turn, brought culture and learning from the South. As a result we have such works as savor of both stimuli, but which may, at the same time, be said to stamp themselves as typically English in their intrinsic character. Here we first find the "leech." Perhaps it might be well to define the word itself before proceeding. "Leech," derived from the Anglo-Saxon *loece,* originally meant a physician, or one who healed. Later, through a transposition of the idea for the thing, the term has become confused with the blood-sucking animal, used often by the early doctors to relieve congestion, etc.

The first of these men we have any record of flourished about the time of Ælfric. As was the case with many of the mediæval practitioners, he was more or less closely affiliated with the church. This is easily comprehensible if we remember that the so-called "higher education" was an accomplishment possessed by few except the fathers of the church, and possibly a few of the royalty, who had laboriously acquired little more than a pretence at enlightenment in the realm of letters. Thus we are not surprised to find the various remedies composed partly of herbs and partly of charms, weird incantations and invocations to the Deity. Furthermore, it is not strange that the monks should have been so conversant with the medical knowledge, considering the wide breach existent, at that time, between the super-wealthy knight, who lived, on the one hand, by plundering travellers and, on the other, by "squeezing" the wretched tenantry, eking out their existence on what the lord overlooked in his magnanimity. These wretched people were often so poorly nourished that frequent calls upon the monasteries for food, treatment and medicine were vitally necessary.

Many noted religious men, such as John of Tours, Bishop of Wells (1088–1123), Grimaldi, and others, brought new medical skill into England just after the Norman Conquest. (Med. Eng., Bateson, p. 76.) Laymen were also known to have been leeches. Payne (Med. Eng. in the Anglo-Saxon Times, p. 13) offers an instance in the ballad, "Sir Cauline." Here a knight is brought wounded to the castle, whereupon the king cries:

> "Come doun, come doun, my daughter dear,
> Thou art a leech of skill."

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* Presented before Section on Historical Pharmacy, A. Ph. A., San Francisco meeting. This excellent paper, comprising in its original form eighty-two pages, was presented by Mr. George G. Marshall as his thesis for the degree of Pharmaceutical Chemist in the Cleveland School of Pharmacy. While it is impossible to print it in full, the abstract presented will give an idea of the literary research work and the devotion to its pursuit shown by the author. There is no statement in this thesis that has not been traced back to the original writer, and the amount of correspondence and expense that Mr. Marshall undertook to collect his material is most remarkable. The bibliography attached to the thesis shows that he was not satisfied to copy from modern authors, but in every case he went back to the original.

William C. Alpers, Sc.D., *Dean.*

This, apparently, points to the possibility of women leeches. An early English work of the fourteenth century gives a prescription said to have been used by Lady Beauchamp, the wife of the Earl of Warwick. The " new " women's movement is a very old one, after all.

Notwithstanding this seemingly democratic status of the " profession," we are safe to assume the religious orders to have had the monopoly, as it were, of the healing art. Within the cloister walls instruction was given the initiates into the priesthood along the lines of applied medicine, that they might aid the sick and starving. In this connection (Wellcome) the following is of note:

" Twig runes shalt thou ken
If thou a leech will be
And ken a sore to see
Of bark shall one then write

And a branch of wood whose
Limbs to east do lout."

The " Medicinale Anglicum," in referring to the leeches as " Leeches Know How," seems also to indicate a somewhat definite organization of remedies and doctors at that time. There likewise appears (Payne, p. 90, cross ref. to A. S. L., li, p. 83) in the recipe, " after the manner which leeches well know," following advice to the scarifying and poulticing of wounds, a further confirmation of the existence of a well-defined class of practitioners in that early period.

Recipe books in manuscript form appeared, embracing hundreds of curious formulas. Every commentator added to the collection until the copy was one vast phantasmagoria of paganism, religion, fact and superstition. The " Medicina de Quadrupedibus " and the " Herbarium " of Apuleius Platonicus, with formulas dating back to the tenth or eleventh century, are the most interesting. That these works enjoyed immense popularity is manifest. They persisted even down to the era of the printed page. In 1480 Johann Philippus de Lignamm printed the manuscript. In the treatise may be found the hart, dog, goat, lion, frog, bull, etc., together with sundry secretions and excretions from various animals.

QUACKS.

Such remedies are, in themselves, curious enough, but not altogether beyond our comprehension, since not only priests and leeches, but also fakes and quacks of every description, who masqueraded under the name of " herbalists," employed them. (Jusserand.) These fakers took their stand in the public places of a village, spread out their wares and proceeded to harangue the people, much as do our present-day quacks, who inveigle the gullible into buying patent " cure-alls." Even among the best doctors of the period we find remedies which must have had their source, certainly, among the fakes. The notorious Roger Clerk, who undoubtedly used such formulas as " Seven heads of fat bats," was, in 1631, sued for illegal practice of medicine in London. He had recommended that a highly preposterous charm be hung about a lady's neck as a sure cure for a suspected ailment. For a number of years a legal war was waged upon quacks, leeches, and pharmacists, because of their questionable methods and remedies. Finally, in 1542, a recognized pharmacopœia was established. The most flagrant discrepancies were struck out. Curiously enough, the book still embraced an astonishingly large number of quackeries and frauds. Crabs, oyster shells, secretions of human beings, etc., together with moss grown on the human skull, figured largely in the intricate recipes. In fact, it was not until the year 1721 that such things as blind puppies and skulls were omitted from the London Pharmacopœia.

The persistence of so many animal ingredients may be looked upon by some as chronic professional unenlightenment. Were the matter looked upon purely in such a light, we might say the point well taken. Justification, however, is not hard to find for this apparent barbarism. So far back as man recalls, he has considered himself the supreme achievement of the Maker, and therefore the rightful measure of all things.

HUMAN BODY IN MEDICINE.

One need but to look into some of the old formularies to see what an important part the members of the human organism played in medicine as the positive cure for all manner of disease. Lemery's "Dictionnaire Universel des Drogues Simples," the early authority in France, as well as Pomet, contains a number of formulas based upon the above mentioned theory of man's physiological value as a remedy. In the Histoire des Drogues, seconde partie, pp. 1–8, are set forth the many virtues of human bones, secretions, etc., as well as their respective value as cures. Skulls, blood, urine, the nails of the fingers and toes, not to mention the secundine of woman, and much more, were employed as ingredients. Yet, these mediæval theories are not so unlike certain doctrines advanced by several present-day schools of medicine. Teaching, to-day, follows along much the same lines. Should a man show symptoms arising, primarily, from an organ not properly functioning, it is at once plain that that particular organ is weak. If this be so, it may be strengthened by supplying fresh vigor through the administration of the healthy counterpart of the weakened member. Thus, if a patient exhibits symptoms arising from abnormal thyroid secretions, due, perhaps, to an unhealthy condition of the gland, he is accordingly given a sufficient amount of the "prepared gland" to restore a normal anabolism. As it is the case now, so it was in the earlier times. To-day, however, medicine is in a state of much higher efficiency. At that time it was still darkened by superstition and unsubstantiated experiments.

Schroderus thus treats like with like—"The liquor distilled from the haires applied with honey causeth the haire to grow. The powder drunk helps the jaundice, applied with sheep's fatt it helps luxate the members, also it stops the hemorrhage in wounds." We find that the spittle of a fasting man was effective against the bite of a mad dog, while the filth of the ears, taken internally, is effective in colic. The falling sickness and rheumatism could likewise be cured, they thought, with mixtures prepared from human bone. "The blood of childbirth (Hartmann) helps the volatick scabb, being applied often with the secundine. Mummy resolveth coagulated blood. Taken it purgeth the head, helps obstruction of the menses and other uterine affections." This author then goes on to show the relatively greater merits of the Arabian mummy over the Egyptian, since the latter is prepared from bitumen and cheap preservatives, while the former is "a thick substance sweating out of dead bodies embalmed with aloes, etc." The torrefaction of dead bodies made a much inferior article, he points out, although such was the product usually palmed off as the genuine article. This was prepared from the body "of a red man (having thinner blood and better flesh) whole, fresh, unspotted, of 24 years old, dying of a violent death and not by disease, the musculous parts being cut in pieces and strewed with myrrhe and a little aloes, afterwards macerating it in the spirit of wine . . . . leaving the pieces at length to dry in a dry aire and shadowy place, then will it be like flesh hardened in the smoke without stinking, etc." The tincture therefrom, they thought, relieved diseases of the breast. In fact, the exalted "oile of mummy is counted of such vivseck quality that there is no particle into which it does not penetrate, nor corruption which it does not cure."

A belt or gloves of human flesh were supposed to greatly facilitate labor and mitigate the throes accompanying childbirth. The "Liquor Cranii Human" sounds rather barbaric to us. It was, at one time, considered highly potent. This "Liquor" was prepared from the unburied skulls which one could so easily pick up anywhere on the roadsides of England during the period when she was crushing outlawry.

With this historical fact well in mind, the enormous variety of preparations made from the human body is somewhat more comprehensible to us. In the early seventeen hundreds, be it remembered, all England was infested with ruthless beggars, highwaymen and "wanted" characters. What punishment the law provided, when they were once apprehended, was as thorough as expeditious. Little wonder superstition somehow centred around the effectiveness of criminals' bones as remedies, when bones were such a common article. Thus, Pomet, in 1694, was informed by a certain Moses Charas, who had resided in England for some time, that, "The Druggists of England sell skulls of the dead upon which has grown a greenish moss, called 'Usnea,' because it resembles the moss growing on the oak." "The great majority of these bones," he states further, "came from Ireland," where there was much trouble at just this time. Pomet cites again from the above source, "They frequently let the bodies of criminals hang on the gibbit until they fall to pieces." No doubt this furnished an object-lesson to those tempted of the devil. Skulls at that time varied in price in direct ratio to the fluctuations of the London market, which, in its turn, was a barometer of the vigilance of the local watchmen and beadles. Desirable skulls have been known to bring from 8 to 11 shillings apiece. Especially coveted were the moss-covered specimens. They commanded a still higher price. The Germans had a marked preference for the heads of those who had died a violent death. They were used in "Sympathetic Ointments" and "Epilepsy" cures. Lemery speaks of a certain "Magistry of Human Skull," made by calcining and powdering the article into a fine state. He further adds, "This magistry is only a dead-head of no virtue unless you employ the skull of a young man who has died a violent death."

Sir Halford, in 1835, printed a paper "On the Deaths of Some Eminent Persons." Herein he gives one of the prescriptions, signed by four physicians on the death-bed of Charles II. It called for "Twenty-five drops of the spirit drawn from human skulls" as one of the principal ingredients. Mayerne's celebrated "Powder de Guttetta" contained, among other things, amber, vitriolated hartshorn, human skull vitriolated and crude, and the secundine of woman. Whether these curious and once popular remedies fell into disuse through any moral awakening on the part of the public conscience, or whether it was through the discovery of a more effective and proper substitute, or again, whether it was the result of an ever-increasing dearth of material as the policing of England became more far-reaching, is a question open to much moral speculation. The solution, I would venture to say, lies rather in the realm of Ethics than in that of Pharmacy. Suffice it to say, Culpeper, so early as the last part of the seventeenth century, either as an ethical or as a practical substitute, recommended instead, "The ashes of the head of a coal-black cat as a specific for such as have a skin growing over their sight."

Furthermore, competition set in between the chief executioner (Wootton, Chron. of Pharm.) and the apothecaries in an endeavor to supply better human fat. Naturally, the former had the advantage of propinquity, and the first choice; but the latter, thanks be to the skill of the worldly pharmacist, produced the finer article, since, as Pomet points out, his was carefully prepared with aromatic herbs and hence made a more savory and marketable product withal.

Franklin (p. 94) gives some rather careful directions for the proper selection of mummy. He says, " In the first place one does not excavate into any but the sepulchres of kings and noble personages, and then the mummy administered in a drinking potion has marvellous curative powers. But it is not advisable to open the coffins of the poor devils who have (Jean de Renou, p. 433) succumbed to death through leprosy or pestilence, because of the cadaverous rottenness with which the corpses drip, nor is it right to tell the article as true and legitimate 'Mumie.'" Tomlinson, in his translation of the works of the above author, says the apothecaries became so greedy to supply the enormous demands for mummy flesh, that they went so far as to throw salt and alum on the carcasses of the French who had died of leprous infection, and then sell them for the genuine article. They even dared gather the corpses of those suffocated in the Arabian sands and sell them to customers as true "Mumie" to be taken internally. In fact, he says, "There are those still who have seen so little of the genuine they really believe mummie is the cadaverous and dry flesh of corrupted and putrid bodies." Such, he maintains, "is kept in apothecary shops to men's greatest peril, which wise men never use in medicine." For, to him, it was absurd to think the substitute efficacious for those "hurt by falling, for it would rather harm them." Posca and oxymel seemed infinitely better to him for such cases.

Wootton further infers that the employment of mummies as a medicine was not an overly ancient custom. To substantiate his claim he cites Chambers' Cyclopedia. Here may be found a remark to the effect that the first use of mummies was accredited to a Jew physician. Whether or not the article was introduced as a medicine maliciously against the Christians, appears to be an open question. Certainly the chief trade in this commodity was carried on by the Armenians and Jews. Pomet, it seems, knew a certain Guy de La Fontaine, royal physician, who once visited Egypt, and while there made observations on the subject. After some parlance with a certain Jewish merchant, he was admitted into the recesses of the latter's shop. There he observed a number of bodies stacked one upon the other. The merchant volunteered they were corpses which he had procured, some having diseases and some being without contamination. These latter he carefully treated with drugs and pawned off to the "trade" as the genuine mummie.

The better to guide the prospective purchaser, Pomet warns him to choose the shiny, black powder made thereof and not the article which is full of bones. A good specimen, he states, is effective in preventing the coagulation of blood.

Pare, a predecessor of Pomet, also had misgivings as to the entire genuineness of the article as offered on the market. He thought most of the bodies were stolen from gibbets, opened and disentrailed, then dried and dipped in pitch. That such a state of affairs was not wholly unknown to the mediæval druggist, is plain from a citation by Oswald Crollius, who goes so far as to offer a formula for preparing artificial mummie, viz., "A young red-headed man (since so many of the genuine had red hair) unburied and macerated in cold water for twenty-four hours," etc. This formed an excellent remedy for wasting of the flesh, ulcers, phthisis, so he states. A somewhat similar formula is cited by Handerson (in Baas' History of Medicine). Here a red-headed, uninjured specimen is again called for, with the variation that he is to have been broken on the wheel, or impaled, upon whom the moon and the sun have shone once, etc. It may be readily seen how closely these various formulas tallied with one another. This leads us to believe that they all took their origin from a common source.

There were, however, many other things, perhaps equally as popular, pertaining to the human body, of which much use was made. Secundine was often prescribed in cases of epilepsy. It was used in "Powder de Guttetta." The secundine is early referred to in the Anglo-Saxon books on leechcraft. . . . In France, Lemery felt he could recommend the article without reserve. . . .

Whatever apparent deductions the mediævals may have apparently made in such matters, they were merely of a felicitous nature and not conclusive researches based upon keen deduction and experimentation. As a good illustration of my point, I might cite the frog. In the middle ages, and, in fact, down to the eighteenth century, frog skins, and also toads, were employed in certain medicines. Whether they were then efficient or not, concerns us little here. We now know that in the skin of the toad there is to be found a digitalis-like principle, highly effective under certain conditions. That they knew nothing of this hidden property can, I believe, be proved unquestionably. The majority of the animals formerly used in medicine were prescribed for reasons based upon superstition, and, let us call it, mediæval unenlightenment. The few marked exceptions to this list were such as could hardly be overlooked even by the most ignorant. Cantharides, for instance, was known and correctly used from the modern standpoint. The propensities of the Hymenoptera for raising the mischief could scarcely be overlooked by even the most ignorant of peasants.

FROGS AND TOADS.

Above, mention is made of the frog and toad. Tomlinson devotes an entire chapter to the setting forth of numerous recipes. A decoction of frog eased the toothache, and brought back, when used with pitch, the falling hairs. Skins were also antidotal for serpents' bites. Because of their breeding habits, an alchemist prescribed "water of frog's sperm for pimples and sore eyes." Others, at the same time, were rather skeptical on the subject, saying of him who searched for the spawn, "Whereas he might hunt, exenterate, dissect, exhaust and search the seminals of all the frogs in the kingdom of France and never get so much sperm as might wet the bottom of his metal pan." Pharmacopœia Londinensis says the "liver of a frog being dried, helps the quartan ague, or as the vulgar call it, the three-day ague." Lemery cites it as helpful in exciting sleep, viz., "Take 10 or 12 living frogs, cut them in pieces and place them in a pot." Another formulary bakes the toad and hangs it up in a linen bag about the neck as an amulet. A live toad, or one dried, does equally well, it tells us. Nose-bleed could be cured supposedly by clipping off the nails of a toad and hanging them around the neck of the patient, whereupon the quartan ague would be "rid away forever." This latter remedy evidently dates back to the precepts of Pliny. In the Pharmacopœia Extemporanea of Fuller, "frog spawn" forms a part of the styptic draught against hemorrhages, overflowing of the menses, and vomiting of blood. It was likewise used as a "refrigerating gargle" in cases of a burning fever. Of a more savory sound, if not of taste, was the "julep with houseleek," used to alleviate the thirst and check "the estuosity of the boiling blood."

Thus, in examining the various formulas, we are struck with the fact that, in many cases, although a general discrimination was drawn, frogs and toads were more or less interchangeable, so far as their reputed virtues went. In recent researches conducted on the physiological chemistry of the toad, the parotid glands have been found to contain the above-mentioned digitalis-like principles called "bufagin," together with a toxic principle in the skin, given the name of "bufonin." A further discussion of the respective properties of these drugs, together with their pathological importance, lies rather in the field of chemistry than in a historical treatise.

Owing to the widespread popularity of the hundreds of animal parts and excretions, many druggists grew wealthy by taking advantage of their opportunities. A woman apothecary, in particular, availed herself of the chance.

Culpeper, so early as 1653, showed a marked aversion to the College of Physicians because they insisted in embodying these disagreeable recipes in the official pharmacopœia. While somewhat outspoken, this commentator, by his lively criticisms, did much toward modernizing the pharmacopœia. In looking through the old leech books, one is struck, not only with the oddness of the remedies, but with the rank foolishness as well, upon which they were based. To the prescription "Oleum Vulpinus," calling for a fat fox of middle age caught by hunting in the autumn, cut in pieces, Culpeper adds, "That was well put in therefore when you have caught a fox, bring him alive to the college and let them look in his mouth and tell you how old he is and so shall your Oyl be cum privilegio." He saw all too perspicaciously for his generation. He was far too sagacious for the follies of the Collegii Londinensis.

CONCLUSION.

A review of the whole field establishes, the more firmly, justification for my earlier remarks concerning the intellectual twilight pervading mediæval history in general, and the development of drugs in particular. Pharmacy labored under the yoke of superstition and mysticism until a comparatively late period. Many of the former remedies have been proved of some worth. Many more have been thrown out as worthless. The greatest error our ancestors made lay in their attempts to cure like with like. For instance, if a man became afflicted with a weak heart, they prescribed a remedy made from the beast whom they supposed must have the strongest organ. They therefore would commend the afflicted one to eat of the heart of the lion. Snake-bites were treated with pounded adder, and the bite of mad dogs, with worms taken from the tongue of the dog itself. At first thought we are very apt to believe these early physicians and pharmacists had some inkling of the modern toxin principles and theories. Yet, this is not at all the case. We may be certain that, whatever convictions they may have had in the realm of experimental medicine, their subsequent treatment was entirely without the cognizance of any of our present antitoxic practices.

Furthermore, from a list of over two hundred and fifty animal drugs (not to mention excretions and secretions numbering at least half as many more) of the earlier pharmacopœias to about two hundred by the year 1667, by 1710 the list had decreased to but seventy-five. This decrease has steadily been going on until there are now but a score. Whether to-day the pendulum is swinging back, is a question. To-morrow, who knows but we may be making "official" all manner of serums, etc. Already there have been several new serums added to the current pharmacopœia. We must not think this is a reversion to the primitive days of Dioscorides, Galen, Charas, Pomet and Hartmann. Quite the contrary is the case. Superficially, the trend may seem to be a recapitulation of the old animal drugs of mediæval England and France, but only superficially. Students of sociological development, and those interested in the curious animalic lore of early pharmacy, will find the subject the more entrancing, the more the breach between the ancients and the moderns is apparently narrowed in the eyes of the layman, and yet, in reality enormously widened to the investigator in bacteriology and organic pharmacy.

BIBLIOGRAPHY.

Cambridge History of English Literature, vol. i, p. 149–150.
Etymological Dictionary, Skeat.
Anglo-Saxon Leechcraft, Wellcome, A. M. A., 1912.
Med. Eng. in the Anglo-Saxon Times, Payne, p. 13.
Brief History of the English Language, Emerson, p. 25.
Med. Eng., Bateson, p. 76.
Eng. Wayfaring Life in 14th Century, Jusserand, Chap. I.
Encyclopædia Brit., Pharmacy, etc.
Chronicles of Pharmacy, Wootton, vols. i and ii.
La Vie Privée, etc., par Franklin, Alfred, Les Médicaments.
Life and Manners in Later Middle Ages, Abram.
Trans. of Works of Joannes Renodæus, Tomlinson, vol. iii.
Medicina de Quadrupedibus, Sextus Placitus, Trans. by Cockayne.
Leechdoms from Flyleaf of MSS., Trans. by Cockayne.
Peri Didaseon, Trans. by Cockayne.
Lacnunga, Trans. my Cockayne.
Book in Cleveland Medical Library, Title-page Missing, D192.
Baas' History of Medicine, Translated by Handerson.
Pharmacopœia Londinensis, notes by Nich. Culpeper, 1653.
Historische Studien a. d. Pharmakologischen Institute, Kobert, vol. iii.
Pharmacopœia Extemporanea, Body of Precepts, Fuller, 1710.
Chambers' Cyclopædia. See Index Title.
Pharmacopœia Londinensis, with notes by Nich. Culpeper, 1667.
Histoire Générale des Drogues. Pierre Pomet, 1694.
Dictionnaire Universel des Drogues Simples, Lemery, 1733.
Pharmacopœia Collegii Londinensis, Anno MDCLXXX.
The Works of Andrew Boorde, Dating about the First Half of the Sixteenth Century, Ed. by Furnivall, E. E. Text. Society.
Manners, Customs and Dress During the Middle Ages, Lacroix.
British Pharmacopœia, 1885.
British Pharmacopœia, 1898.
Complete History of Animals and Minerals, Robert Lovell, 1661.

SCIENTIFIC SECTION

DISCOVERY OF THE ALKALOIDAL AFFINITIES OF HYDROUS ALUMINUM SILICATE.*

BY JOHN URI LLOYD, PHAR.M.

TABLE IV.

(1) 14 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(2) 22 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(3) 50 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(4) 60 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(5) 60 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(6) 70 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(7) 70 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(8) 100 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(9) 100 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(10) 100 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(11) 110 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(12) 120 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(13) 150 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(14) 150 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(15) 150 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(16) 150 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(17) 150 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(18) 204 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(19) 800 Gm. were required to precipitate 1 Gm. quinine bisulphate.
(20) 1000 Gm. were required to precipitate 1 Gm. quinine bisulphate.

To the surprise and disappointment of both Dr. Parsons and myself, the alkaloidal affinities of these various specimens did not parallel their decolorizing qualities, as determined by Dr. Parsons. For example, one specimen that stood very high as a decolorizer was very low as regards alkaloidal affinities. Nor were colloids prepared by me from other sources capable of paralleling each other in adhesion intensity for different alkaloids, as shown in Table V, following.

TABLE V.[25]

Comparative Energies of Two Specimens of Colloid from Fullers' Earth.

	Amount required.	
	First source.	Second source.
1 Gm. cocaine hydrochlorate	13 Gm.	10 Gm.
1 Gm. strychnine sulphate	11 Gm.	10 Gm.
1 Gm. morphine sulphate	6 Gm.	4 Gm.
1 Gm. brucine sulphate	9 Gm.	6½ Gm.
1 Gm. codeine sulphate	5 Gm.	5 Gm.
1 Gm. quinine bisulphate	15 Gm.	8 Gm.
1 Gm. cinchonine sulphate	10 Gm.	10 Gm.
1 Gm. cinchonidine sulphate	9 Gm.	10 Gm.
1 Gm. atropine sulphate	8 Gm.	8 Gm.

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* Continued from p. 390, April issue.

[25] Of the whole line of perplexities and possibilities, the most perplexing problem to me is perhaps the evidence of such discordant results as shown in Table V.

Note the remarkable variation in the amount of colloid required to precipitate the *same amount* of a given alkaloid. While in general the reagent obtained from the second source is noticeably more energetic than from the first source, they are alike in energy as regards their reaction with atropine sulphate, codeine sulphate and cinchonine sulphate, while with cinchonidine sulphate the first colloid is more energetic than the second!

What is Fullers' Earth?—Some specimens of "fullers' earth" are of no alkaloidal value whatever, while some that rank well in this respect are naturally so foul and dirty as to forbid the very thought of putting them into the stomach. Dr. Parsons writes as follows:

> Though samples of fullers' earth from different parts of any one deposit, or indeed from any one locality, are much alike, samples from different localities are so different in their physical properties that it is by no means easy to classify them. To determine whether or not a particular clay is a fullers' earth is no simple matter, for its bleaching power is practically the only characteristic by which it may be identified. Among the properties formerly attributed to fullers' earth are non-plasticity, disintegrating in water, detergent action, large water content, and the property of adhering to the tongue.

In this Dr. Fantus also agrees, as evidenced by the following, from his most recent article:

> The power of adsorbing alkaloids is strongly developed in some fullers' earths, and very feeble in others. The adsorptive value of commercial fullers' earths should be stated by the dealers; and pharmacists should demand specimens of high activity. Lloyd's reagent possesses this power to the highest degree.
>
> Fullers' earth is not synonymous with kaolin, as the United States Dispensatory and the National Dispensatory would lead us to infer. It is a substance with markedly different properties.—*Jour. Amer. Med. Assn.*, May 29, 1915.

Analyses of Fullers' Earth and Related Clays (*by Mr. A. F. Price*).—During my search for American fullers' earths capable of yielding the active colloids, Dr. John H. Dawson, of the United States Customs Service, San Francisco, introduced me to Mr. A. F. Price, who has had great experience in the analysis of clays and minerals of the West, and whose father (Professor Thomas Price) was celebrated in earth and mineral analyses. Mr. Price entered with enthusiasm into the subject, both because of his hope of developing a new process of clay valuation, and because he had long been professionally confronted with the commercial uncertainties of fullers' earth. He had already decided that the useful substance contained therein must be considered from its physical or colloidal aspect, and that chemical analytical processes were inadequate as standards of commercial valuations. He also described the processes of making from crude clays and clay mixtures the commercial, powdered fullers' earth, as follows:

> *Treatment of Fullers' Earth.*—In this method, even those portions of the strata of fullers' earth which are now commercially valueless can be utilized. The different qualities of fullers' earth are thoroughly mixed, blended and amalgamated by grinding them, with the addition of water, to a slurry. The slurry is run into reservoirs, and allowed to settle. All water rising to the surface is removed and the residue is dried. The product is of uniform strength, quality and color.
>
> *Machine for Washing and Refining Fullers' Earth, China Clay, etc.*—The fullers' earth is placed in a tank and mixed with water; it then goes to a second tank provided with an agitator to complete the mixing; and then to a refining machine consisting of two stationary concentric cylinders and an inner vessel like an inverted cone, having slots in, and projecting strips on, its sides. By the rotation at about 100 r.p.m. the coarser particles are driven against the walls of the inner cylinder and fall on the bed plate at its base, whence they are swept into the

annular space between the two cylinders by curved radial arms revolving with the inner vessel, and can be removed from time to time. The finer particles remain in the inner vessel, whence they flow into the settling tanks.

Mr. Price supplied me with a number of analyses of fullers' earths, made by his father and himself. These, in the paucity of published analytical reports, I include herewith. But as yet I have had no opportunity of paralleling these assays with an examination for their alkaloidal affinities.

Analyses, by A. F. Price, of Samples of Material Received from The Associated Oil Company.

February 3, 1911.

	No. 1. Percent.	No. 2. Percent.	No. 3. Percent.	No. 4. Percent.	No. 5. Percent.
Silica	52.89	55.73	54.25	58.15	54.08
Alumina	23.81	25.33	26.76	24.64	24.07
Ferrous oxide	1.67	1.25	1.34	1.05	1.93
Calcium oxide	2.52	2.06	2.35	1.23	2.15
Magnesium oxide	3.05	3.10	2.41	2.15	2.20
Alkalies	1.04	1.31	1.38	1.18	1.08
Carbon dioxide	0.61	0.55	0.61	0.81	1.05
Water	13.85	10.05	10.25	9.97	12.50
	99.44	99.38	99.55	99.18	99.06

	No. 6. Percent.	No. 7. Percent.	No. 8. Percent.	No. 9. Percent.	No. 10. Percent.
Silica	54.36	54.73	54.35	55.89	57.28
Alumina	26.25	24.18	23.28	23.56	25.42
Ferrous oxide	1.78	1.02	2.12	1.23	2.01
Calcium oxide	1.32	3.61	1.83	2.31	2.26
Magnesium oxide	3.33	1.43	1.38	3.04	3.12
Alkalies	1.03	0.87	1.21	0.83	1.05
Carbon dioxide	0.85	2.83	trace	0.50	0.81
Water	10.55	10.65	15.10	12.10	7.60
	99.47	99.32	99.27	99.46	99.55

List of Analyses of Recognized Fullers' Earth from Well-known Localities, Submitted for Purposes of Comparison with Our Report of This Date to The Associated Oil Company.

February 3, 1911.

Fullers' Earth from South Dakota.

	Percent.	Percent.	Percent.	Percent.	Percent.	Percent.
Silica	68.23	60.16	56.18	55.45	57.00	68.72
Alumina	14.93	10.38	23.23	18.58	17.368	16.90
Ferrous oxide	3.15	14.868	1.26	3.82	2.63	4.00
Calcium oxide	2.93	4.96	5.88	3.40	3.00	4.06
Magnesium oxide	0.875	1.714	3.29	3.50	3.027	2.56
Water	6.20	7.20	11.46	8.80	9.50	8.10

It is claimed that the material from South Dakota is fully equal to English fullers' earth, three analyses of which are given below:

	Percent.	Percent.	Percent.
Silica	44.00	55.48	60.90
Alumina	23.06	19.16	18.34
Ferrous oxide	2.00	11.78	10.00
Calcium oxide	4.17	3.10	2.36
Magnesium oxide	2.00	3.71	1.52
Alkalies	....	....	1.72
Water	24.95	6.75	4.89

The following are analyses of fullers' earth from Florida:

	Percent.	Percent.	Percent.
Silica	60.53	55.05	59.02
Alumina	20.13	22.88	11.88
Ferrous oxide	....	7.47	7.14
Calcium oxide	2.57	4.77	6.48
Magnesium oxide	2.12	0.43	3.24
Water	14.75	10.42	11.13

Standard Analyses of Fullers' Earth and Various Clays.

	Bakersfield Fullers' Earth.	English Fullers' Earth.
	Percent.	Percent.
Silica	54.32	54.20
Alumina	18.88	14.30
Ferric oxide	6.50	6.30
Lime	1.00	1.25
Magnesia	3.22	2.72
Loss on ignition	11.86	17.44
Alkalies (by difference)	4.22	3.79

Kaolin Clays.

	Percent.	Percent.	Percent.
Silica	62.40	46.28	72.30
Alumina	26.51	36.25	18.94
Ferric oxide	1.14	1.64	0.40
Lime	0.57	0.192	0.58
Magnesia	0.01	0.321	0.39
Water	8.80	13.53	7.04

Sewer Pipe Clays.

	Percent.	Percent.	Percent.
Silica	57.10	63.00	59.56
Alumina	21.29	23.57	15.76
Ferric oxide	7.31	1.87	7.72
Lime	0.29	0.46	0.60
Magnesia	1.53	0.89	0.93
Water	7.35	6.45	7.70

Brick Clay.

	Percent.	Percent.	Percent.
Silica	52.30	71.56	42.28
Alumina	18.85	13.86	8.26
Ferric oxide	6.55	4.78	3.84
Lime	3.36	0.50	13.05
Magnesia	4.49	0.11	6.01
Water and carbonic acid	....	....	22.07

Analyses of Slip Clays for Glaze.

	Percent.	Percent.	Percent.
Silica	55.40	43.94	63.63
Alumina	14.80	11.17	13.57
Ferric oxide	5.80	3.81	7.77
Lime	5.70	11.64	2.55
Magnesia	2.48	4.17	1.47
Water	5.18	3.90	4.75

Clays for Hollow Bricks and Fireproofing.

	Percent.	Percent.	Percent.
Silica	52.22	57.57	51.90
Alumina	29.45	21.70	18.34
Ferric oxide	2.78	2.26	7.50
Lime	0.88	0.32	4.14
Magnesia	0.72	1.12	3.30
Water	11.10	6.78	7.39

	Pressed Bricks.		Clay for Paving Brick.	
	Percent.	Percent.	Percent.	Percent.
Silica	65.78	68.28	56.00	74.25
Alumina	14.79	18.83	22.50	22.33
Ferric oxide	8.03	2.60	6.70	5.75
Lime	0.54	0.70	1.20	3.42
Magnesia	1.42	0.13	1.40	3.47
Water	4.68	7.81	7.00	1.13

Bentonite Clay.

Used for the manufacture of both ordinary and pressed bricks (and having none of the properties of fullers' earth).[26]

	Percent.	Percent.	Percent.
Silica	59.78	61.06	63.25
Alumina	15.10	17.12	17.62
Ferric oxide	2.40	3.17	3.70
Lime	0.73	2.69	4.12
Magnesia	4.14	1.82	3.70
Water	16.26	....	....

Well-known Fire Clays.

	Silica. Percent.	Alumina. Percent.	Water. Percent.	Balance. Percent.
Stourbridge	65.10	22.22	7.10	5.57
	63.50	23.30		10.30
Dowlais	67.12	21.18	4.32	7.38
	58.10	26.59	7.57	7.74
French	63.57	27.45	8.64	0.74
Cornwall	47.75	38.11	12.54	1.30

To these analyses of commercial fullers' earths, I append Dr. Waldbott's analysis of "Lloyd's reagent," with his comments thereon, as follows:

> The reagent has approximately the following composition: H_2O, 17.41 percent; SiO_2, 55.30 percent; Al_2O_3, 9.82 percent; Fe_2O_3, 14.18 percent; CaO, 1.58 percent; CO_2, percent not determined. Heating the material to about 130° did not destroy its peculiar activity; but a red heat expelled an additional quantity of water, rendering the reagent inert. When the reagent is exhausted with hydrochloric acid, the residual earth is still effective. The activity of the reagent is not impaired by concentrated nitric acid or by *aqua regia.* After the alkaloid has been removed from its combination with the reagent, the residual material retains the full effect. This process results in a jelly difficult to filter and slow to settle; it is precipitated readily by addition of an acid, or an alkaloidal salt. In drying, the jelly shrinks to a very small bulk; conversely, the solid expands remarkably in contact with water. The jelly precipitates inorganic salts also, *e.g.,* barium chloride, lead acetate, zinc sulphate, etc.[27]

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[26] This statement is not correct if it is the bentonite I now know.—*A. F. P.*

[27] Journal of the American Chemical Society, vol. xxxv, No. 6, June, 1913.

The Term "Adsorption."—The nature of the alkaloidal reaction that I have considered under the word "*affinity*" may, I hope, be properly touched by me without intruding on scientific researches now being made by others. I have accepted that, for purposes of expression, this term "affinity" may be more restricted, by regarding the phenomenon as one of *adsorption.* I am the more inclined to this view, not only because the phenomenon seems *not* to be governed by atomic valency (see Table V), but because writers have always employed the word "*adhesion*" in connection with the attractive decolorizing action of fullers' earth. The *physical* condition of the material being all-important to the phenomenon points also in that direction. In this I take the liberty of extracting the following from a letter by my friend, Dr. R. G. Eccles, of Brooklyn, New York:

> Adsorption is of exceedingly great interest in biology, and is at present commanding a vast amount of attention from physico-chemists. The word *adsorption* combines the two meanings of *adhesion* and *absorption.* The word *adhere* means simply to stick to, as by the use of paste, glue, or atmospheric pressure of a leather sucker to a stone. The word *absorb* applies to the taking up of a solution by blotting paper or a sponge. *Adsorption* does not appear to be either *adhering* or *absorbing,* but more like the taking up of hydrogen by platinum sponge, or like the precipitating and coagulating of colloidal proteins by contact with reacting agents of a chemical kind. It manifests at one and the same time a resemblance to *adhesion* and *absorption.*[28]

The eminent authority, Dr. Gordin, has used no other expression relating to this phenomenon, to which I may add that Dr. Wolfgang Ostwald,[29] of the University of Leipsic, Germany, who in the spring of 1914 spent some time in my laboratory, studying several phases of mutual interest in the direction of capillary and colloidal phenomena that my special line of researches had developed, accepted that view of the reaction. And yet, more than one phase of the subject still proves to me very perplexing. For example, the alkaloid sanguinarine is insoluble and white, but produces *red salts.* A mixture in water, of *white,* ammonia-made Lloyd's reagent, insoluble, alkaline, with *white* sanguinarine (practically insoluble) produces gradually a *red* alkaloidal compound, insoluble in dilute acid water. If this phenomenon be adhesion, *purely,* the reagent has the power of reddening this white alkaloid, giving to the adhesion product the color of the *salts* of sanguinarine. As a contrary view, may I not call attention to some of the phases of manipulation aforenamed, that seem to show that no exact chemical valency exists (see Table V)?

But I must not intrude further, for all such problems and outreaches are (or will be) in the hands of special investigators. This contribution is intended to introduce only enough chemistry and physics to elucidate the various problems I had to meet, in the face of lack of print or personal knowledge of anyone. The alkaloidal affinities of the substance under consideration seemed to be unknown.

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[28] From letter of Dr. R. G. Eccles, Brooklyn, N. Y., June 21, 1915.

[29] After returning to Germany, Dr. Ostwald obtained from me considerable amounts of this reagent. He instituted systematic researches in the University laboratory, being deeply interested in the subject. Dr. Ostwald is also an officer in the German Army, and is now serving in the trenches.

Editor's Notes.—Last month Professor Lloyd lectured in several Colleges of Pharmacy and demonstrated the action of hydrous aluminum silicate with alkaloids. A series of slides were projected on the screen, showing several of the alkaloids in the magma, in their development from a colloidal condition to crystalline forms.

Related contributions by Professor Lloyd that appeared in the Proceedings of the American Pharmaceutical Association from 1871 to 1885 will be translated (part have been), for publication in the Zeitschrift für Chemie und Industrie der Kolloide.

CONTRIBUTED AND SELECTED

THE PHYSICAL SIGNIFICANCE OF EMULSIONS.*

BY LEO ROON.

Colloid and physical chemists have for many years, and especially so in recent years, carried out many investigations on emulsions with the idea of bringing to light the many missing links in the emulsion theory chain.

On the other hand, the pharmacists have done excellent work on emulsions for a greater number of years, but this was purely on the practical side. It is of interest to note, however regrettable, that the younger generation of pharmacists does not attempt to contribute even to our practical knowledge of the subject. This was brought out by a perusal of the proceedings of the American Pharmaceutical Association, which reveals the fact that almost all emulsion experimentation by pharmacists was done in the period between 1870 and 1900, and practically no work of value has been done since.

Therefore, for the explanations of the " why " of emulsions, we must of necessity turn to the physical chemists, and then, having in our minds a bird's-eye view of what they have tried to explain, perhaps we shall be able to apply *their theory to our practice.*

The object of this paper, then, is to give a brief résumé in chronological order of the development of those portions of the theory of emulsification which might be of practical application and of general interest to the pharmacist.

Several terms, which will appear frequently in this paper, will be defined first:

Each different, homogeneous part of a system is called a *phase.* For instance, pure water and olive oil are two different liquid phases.

If we now add the oil to the water and shake vigorously, we obtain a very fine distribution of a liquid phase (olive oil) in another liquid phase (water). Such a heterogeneous system is called an *emulsion.*

The phase which is divided into small separate volumes (in this case, the olive oil) is called the *disperse phase.*

The phase in which the disperse phase is distributed (in this case, the water) is called the *dispersion medium.*

The surface of a liquid has different properties from its interior, and acts like an elastic bag, tending to diminish the surface area. This effort or force exerted to diminish the surface of a liquid is its *surface tension.*

In adding to water as little as 0.01 percent of soap, the surface tension of water is decreased to 40 percent of its original value. If to such a solution oil is added and the mixture shaken, the tendency for the oil globules to gather together and the water particles to gather together is diminished. Substances, such as soap, that lower surface tension also cause *surface concentration,* and this phenomenon is an important factor in stabilizing emulsions, as will be shown later.

Surface tension $\times$ surface $=$ surface energy.

For instance, 1 Cc. (mil) of oil has approximately a surface of 6 sq. cm. If this 1 Cc. (mil) of oil is subdivided into globules having a diameter of about 1 micron (1/1000 mm.), then that same quantity of oil has a surface of 60,000 sq. cm., or, in other words, if the surface tension has not changed, then the surface energy is now 10,000 times as great as before subdivision. This is evidenced in making an emulsion nucleus. The trituration at first is very easy. As the particles become more and more finely subdivided, the total surface, and also total surface energy, increase tremendously, and the work in trituration necessary to overcome the increased energy is very great indeed.

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* Read at the meeting of the American Pharmaceutical Association, New York Branch, April 10, 1916.

In 1870, E. v. Brucke[1] announced the fact that when rancid oil, or, in other words, oil containing free fatty acid, is shaken with a solution of sodium carbonate and certain other alkaline liquids, an immediate emulsion results. He believed that the oil was broken into fine globules by shaking, and that the soap formed served to hold the emulsion by preventing the oil globules from coming together.

In the same year, L. Plateau,[2] after investigating various emulsions, came to the conclusion that the formation of emulsions depends on low surface tension and a high viscosity, the decrease in surface tension permitting greater miscibility, and the high viscosity hindering the coalescence of the oil globules.

In 1873, Donath[3] made practical use of the formation of emulsions as a means of detecting adulterants. He boiled for five minutes a piece of beeswax, about the size of a nut, with a concentrated solution of sodium carbonate. If an emulsion remained on cooling, the wax was considered adulterated with rosin, tallow, stearic acid, or Japanese wax.

In 1878, Johannes Gad[4] called attention to the fact that, when oil containing the proper percentage of fatty acid was placed on the surface of a sodium carbonate solution a beautiful spontaneous emulsion resulted, and from this he held that neither shaking, nor any other outside mechanical force was necessary to the formation of an emulsion, but that the chemical force developed by the soap formation of itself was sufficient, under favorable circumstances, to break the oil drops into the finest emulsion globules.

Gad's method, used in his study of spontaneous emulsions, consisted in taking a series of watch glasses containing a 0.25 percent solution of sodium carbonate. Drops of oil containing different percentages of fatty acids were gently placed upon the surface of the solutions in the watch glasses, and the amount of spontaneous emulsification noted. Gad found, at room temperature under the conditions named above, that the oil which contained about 5.5 percent of fatty acid emulsified spontaneously, and that oils with very little more or less than 5.5 percent of fatty acid yielded incomplete emulsions. He therefore determined that the limits of good spontaneous emulsibility were not only constant, but quite narrow.

The essence of Schischkoff's[5] work, published in 1880, is as follows:

1. He found also that fats and oils with free fatty acid were emulsifiable with dilute alkaline solutions.

2. He could emulsify oil of turpentine, mineral oil, etc., by alkaline liquids, if a small amount of stearic acid were added to the oils.

3. He observed that butter fat, freed from free fatty acid, could not be emulsified by an alkaline liquid.

4. Finally, he discovered in whey an albuminoid, which is different from common albumen and casein. His synthetic experiments tended to show that casein, without this albumen, may form milk, but not cream.

In 1888, Quincke[6] discusses emulsions as follows:

"By shaking oil with soda or gum arabic solution, one can prepare emulsions which look like milk. When fatty oils are emulsified in soda solution, the coalescing of the fat globules is prevented by a thin layer of soap solution, any opening in which is at once closed by the molecular forces." He also shows in a table that the surface between the fatty oils and the gum arabic solution is less than the surface tension of the fatty oils against water. Further, he states that "if one shakes together mercury, water and olive oil, there is formed a grayish-white viscous mass, an emulsion of mercury, formed of many small globules of mercury, each one covered with a film of oil. . . ." According to Quincke, "gray mercury salve is really an emulsion of mercury in viscous lard."

In 1891, Rachford[7] published an exceedingly interesting paper entitled, "The Influence of the Bile on the Fat-splitting Properties of the Pancreatic Juice," which, because of its wealth of emulsion study, will be briefly abstracted herewith:

Rachford employed in his experimental work Gad's method of determining the spontaneous emulsibility of oils. He showed that heating an animal or vegetable oil split off free fatty acid, so that a neutral oil, incapable of being emulsified with alkaline liquids, when heated, developed sufficient free fatty acid to form a good emulsion with sodium carbonate solution.

Rachford says, "It is a physiological fact beyond dispute that the splitting of fatty acids is a most important preliminary step in fat digestion. That the cooking of fats will develop in them fatty acids is therefore a fact of considerable physiological importance and one that, so far as I know, has not previously been noticed."

With these as preliminaries, the author goes on with his investigations with the pancreatic juice. He inserts a small glass cannula through the pancreatic papilla into the pancreatic duct of a living rabbit, and collects about 1 Cc. of juice "uniform and powerful in physiological action." He arranges a series of watch glasses with 0.25 percent sodium carbonate solution in them (Gad's method). Into a 2 Cc. tube, ⅓ Cc. of pancreatic juice and ⅔ Cc. of neutral olive oil is placed and shaken, and the oil allowed to separate. One drop of this oil is pipetted on the surface of solution in watch glass No. 1. The tube is shaken again, mixture allowed to separate, and a drop of the oil pipetted on solution in watch glass No. 2. This is repeated every three or four minutes until the experiment is completed. Gad had found that oil containing 5.5 percent of free fatty acid emulsified spontaneously in 0.25 percent sodium carbonate solution, and Rachford used this fact as a measure of the fat-splitting action of the juice. The results may be shown as follows:

Sodium carbonate solution, 0.25 percent, to which is added drop of

Oil with no fatty acid	no emulsion.
Oil with steadily increasing amounts of fatty acid	more and more emulsion.
Oil with 5.5 percent fatty acid	spontaneous emulsion.
Oil with increasing amounts of fatty acid	less and less emulsion.
Oil split to all fatty acid and glycerin	no emulsion, only turbidity due to soap.

All the oil is split to fatty acid and glycerin in one to two hours' action of the pancreatic juice.

"The action of the juice on most of the fats is rapid and complete. Castor oil is an exception to the rule, as only a very small quantity of acid is developed in it by the action of pancreatic juice for 5 hours at 37° C. Castor oil is therefore practically indigestible, and this may in part account for its cathartic action."

In 1898, Moore and Krumholz[8] published their paper "On the Relative Power of Various Forms of Proteid in Conserving Emulsions," in which their experimental data, dealing with emulsions made with white of egg, blood serum, acid and alkali albumen prepared from each of the above, and with Witte's peptone (chiefly deutero-albumose), shows an order of emulsifying value as follows:

Alkali and acid albumen	very effective.
White of egg and blood-serum	very little action.
Albumose	practically inert.

The theory of emulsions interested Donnan[9] for a number of years, and, in a paper on soap emulsions, he says:

"The formation of emulsions of fatty oils and alkaline liquids is a phenomenon well known to physiologists. So far as I know, this subject has never received quantitative treatment, and there seems to be no general theory on the subject. . . . The problem is an especially interesting one, bcause it will probably lead some day to a rational theory of coloidal solutions."

Now, Donnan proceeded by taking a stop-cocked pipette with a curved tip, and filled it with rape-seed oil. This was lowered into water, the oil allowed to flow, and the number of drops rising to the surface counted. Additions of sodium hydroxide were made, and the effect noted as shown in table.

Rape-seed Oil and NaOH.

Gm.-mol. NaOH per liter.	No. of drops.
0	88
0.0008	213
0.0011	430
0.0013	stream

Similar results were obtained with sodium carbonate. From this we see that surface tension plays an important part in the phenomenon, and that this decreases very rapidly with increasing concentration of alkali.

Commenting on his result, Donnan says: "This decrease in surface tension is due to the formation of soap at the surface. . . . At first one might be inclined to suspect a surface saponification of the glyceride, but most of the text-books on physiology state that the natural oils almost all react acid and that the emulsifying action of the alkaline liquids is the result of the formation of soap by simple neutralization (of the free fatty acid)."

To prove this view, Donnan prepared an absolutely neutral olive oil and repeated the above experiments with these results:

	No. of drops in water.	No. of drops in N/1000 NaOH.
Commercial oil (acid reaction)	58	331
Purified oil (neutral)	55	58

The difference in the number of drops of the neutral oil is negligible.

Treating a neutral hydrocarbon of the paraffin series in the same way, he got no appreciable increase in the number of drops with alkali. However, on dissolving 0.6 percent of stearic acid in the hydrocarbon, soap was formed and the number of drops increased.

	No. of drops.
Pure hydrocarbon:	
In water	47
In N/100 NaOH	52.7
Pure hydrocarbon with 0.6 percent stearic acid:	
In water	48.5
In N/1000 NaOH	320.0

In 1903, Hillyer,[10] in his study of the cleansing power of soaps, discusses emulsions on lines similar to those of Donnan. He brings out the fact that a soap solution, even though very dilute, has a lower surface tension than any other aqueous liquid, its surface tension being only 40 percent that of pure water.

"Can emulsification be explained by the viscosity of the emulsifying agent? In the case of very thick liquids, like the gum solutions used by the pharmacists, it is probable that the extreme viscosity is a very large factor in giving permanence to the oil droplets which have been formed mechanically. That even very large internal viscosity will not make a permanent emulsion is shown by the fact that 50 percent glycerin, or 6 percent gum solution, will not emulsify kerosene or a viscous oil, like cotton-seed oil. Saponin or albumen solution with high surface viscosity will give permanent emulsions. Dilute soap solutions, which have not a great viscosity, have very great emulsifying power, and the same is true to a less degree of some other solutions. From these facts it must be decided that internal viscosity of a liquid will not account for its emulsifying power."

Hillyer's conclusion is "that emulsification is largely due to the small surface tension between oil and emulsifying agent, which allows the emulsifying agent to be spread out in thin films, separating the oil droplets. The surface tension is not strong enough to withdraw the film from between the droplets except slowly, and if the emulsifying agent has shown great internal viscosity, or if great surface viscosity is shown between the liquids, the thinning out of the film becomes so slow that the emulsion is permanent."

In 1907, K. Beck[11] made a study of emulsions of gum arabic solutions with castor oil, and noticed, on mixing the two, a great increase in viscosity. He believes the increase of viscosity to be due to surface forces which only become important when the water particles are distributed as very fine particles through the oil, since the water, before that, moved through the oil without hinderance under the influence of gravity.

An exceedingly fine contribution to the theory of emulsification was made by Pickering[12] in 1907, but, due to the length of the paper, only a few important points can be brought out here. Many of his emulsions were made with a solution of soft soap as the emulsifier, and it is interesting to note that he was able to obtain with it an emulsion containing as high as 99 percent of paraffin oil. Pickering tried solutions of glue, starch, egg-albumen, saponin, etc., as emulsifiers, but he found that none gave emulsions of such fine texture as soap.

"The basic sulphates of iron and copper are among those substances which give excellent emulsions. They may be formed by adding lime, or lime-water, to the normal sulphates, and then the paraffin oil, when the slightest churning, or even shaking, of the mixture, produces emulsification. Besides the ease of manufacture, and the absence of spontaneous de-emulsification, these emulsions possess the advantage of not being decomposed by the addition of caustic soda. . . . When the copper salt is used, the emulsion possesses all the fungicidal properties of Bordeaux mixture."

Based on his experimental data, Pickering has classified the emulsifying agents under three heads according to their value. We quote what he has to say about good emulsifiers:

"*Good Emulsifiers.—Among soluble, or partially soluble substances,* soft soap seems to be the best; dissolved starch, milk and flour are good, although the latter forms a flocculent, not a creamy, emulsion, and milk gives rise to solid clots; glue emulsifies well, and so does egg-albumen, but the emulsion of the latter is rather frothy, owing to enclosed air bubbles; saponin and quillaya bark give good emulsions when the proportion of oil present is not large.

"*Among the insoluble emulsifiers,* the basic sulphate of iron is the best, followed by those of copper and nickel; the basic sulphates of zinc and aluminum give good emulsions at first, but aggregation of the particles seems to occur, and causes partial de-emulsification. Ferrous hydroxide and higher hydrated oxides of iron are good. The precipitate obtained by adding sodium carbonate to copper sulphate is a very good emulsifier, so are calcium carbonate and arsenate when first precipitated, but the latter soon becomes crystalline and de-emulsification follows; lead arsenate, freshly precipitated, is good, and zinc oxychloride, or basic chloride, is fair, although the emulsion with it is somewhat flocculent; some fine clays (unheated) give good emulsions, but they naturally contain many gross particles which sink to the bottom unemulsified; ferrous hydrosulphide gives a good emulsion if the proportion of oil present is small."

Holde[13] shows that lime and alumina soaps are used in lubricating greases, but of this very interesting paper, we can quote but a few lines.

"Though the composition of these greases varies somewhat, most of them consist of a solution of lime soap (15–23 percent and sometimes more) in a heavy mineral oil with the addition of a little water (sometimes as little as 0.5–0.7 percent, but usually 1–4 percent).

"The lubricating greases offer a series of interesting problems in physical chemistry, which have not yet been studied from a scientific view-point.

"Observations show that the water is usually present in a state of very fine mechanical subdivision. This much is certain, that a small amount of water is necessary in the grease to produce satisfactory permanency, since all greases that do not contain water soon become inhomogeneous. As technical men say, they let go of the oil."

Another instance in which water is the disperse phase is to be found in the case of mixed paints. Toch, in "The Chemistry and Technology of Mixed Paints," is quoted here.

"The manufacture of mixed paints is essentially American, having been accredited to some enterprising New Englanders, who observed that when linseed-oil paint was mixed with a solution of silicate of soda (water-glass), an emulsion was formed, and the paint so made showed very little tendency to settle or harden in the package. Several lay claim to this invention. The first mixed paint was marketed in small packages for home consumption and appeared about 1865.

". . . A mixed paint should not contain over 2 percent water, for it is unnecessary to add more than this amount to any paint.

"The materials used for 'emulsifying' paint are the carbonates of all the alkalies, borax, zinc sulphate, calcium hypochlorite, manganese sulphate and chloride, ferric chloride, lead acetate, ferrous sulphate, alcoholic solutions of these various salts, also the alcoholic solutions of these salts containing a small percentage of moisture."

In working with soap emulsions, Donnan found that the salts of the lower fatty acids, formic, acetic, butyric, etc., had not the same action in reducing surface tension as have salts of oleic, stearic and palmitic acids. This very interesting fact was also observed in 1908 by Mayer, Schaeffer and Terroine.[14] The alkali salts of the lower fatty acids, formic, acetic, etc., form homogeneous, optically empty solutions, while in the neutral solutions of capronic, caprylic and lauric acids, ultramicroscopic suspensions are to be observed. "When considering aqueous solutions of the alkali salts of the normal saturated fatty acid, we are not far from the truth when we say that 'soapiness' begins about with caprylic acid and is clearly marked with lauric acid." It would seem from this that only those fatty acid salts that lie in the realm of colloids have the property of soapiness, and the ability to emulsify.

In 1909, Lewis,[15] a worker in Donnan's laboratory, discusses in his paper another side of the general theory. "He worked with an emulsion of mineral oil in water because that eliminated secondary reactions. He appears not to have added any third substance intentionally, which perhaps accounts for his getting only weak emulsions." He simply shakes the oil with water in a mechanical shaker for 48 hours, and gets an emulsion, whose oil particles exhibit Brownian movements and other phenomena similar to that shown by colloidal metals.

In 1910, Robertson[16] published some results on emulsions of olive oil and water which are of special interest because he succeeded in obtaining an emulsion of water in oil. We quote a portion of his article.

" If one shakes up, thorougly, equal parts of slightly alkaline water and olive oil, a very stable emulsion is formed in which the olive oil forms the internal phase, and water the external; that is, the olive oil is suspended in the form of spherical droplets within the water. If we decrease the proportion of water, the resultant emulsion still continues to consist of droplets of oil suspended in water until the proportion of water to oil reaches a definite critical value. When this critical ratio is reached, the character of the emulsion undergoes an abrupt change. From being a viscous, creamy-white emulsion of oil in water, it becomes a fluid, yellow emulsion of water in oil. The oil is now the external phase, and the water the internal phase. One can readily detect which phase of the emulsion is external, without microscopic examination, by means of the following simple device: The bright red dye Soudan III is insoluble in water, but readily soluble in oils; on sprinkling a few grains of Soudan III on the surface of an emulsion of water in oil, the color rapidly spreads over the surface. If, however, one sprinkles the Soudan III on the surface of an emulsion of oil in water, the color remains confined to the droplets of oil with which the grains are in actual contact, since it cannot spread from them to the adjacent drops through the intervening water."

In 1910, Pickering[17] published another paper in which he brings out the rather startling fact that potassium cupric tartrate will emulsify a mixture of alcohol and water, even though we know them to be miscible in all proportions. Bancroft found on trying this that the potassium cupric tartrate causes the aqueous alcohol to separate into two layers. Thus, he shows that it is evidently possible to make emulsions of acetone in water by first adding some such salt as potassium carbonate to cause the formation of two layers, and then adding a suitable emulsifying agent.

Based on his experimental data in this and in his former paper, Pickering sums up his notion of the effect of surface tension and viscosity in the formation of emulsions.

" The conclusion to be drawn is that emulsification may take place in a liquid when the viscosity is not high and the surface tension is not low, though it is admitted that a high viscosity and a low surface tension often facilitate the formation of emulsions. The only, or rather chief, cause of emulsification seems to be the presence in the liquid medium of small insoluble particles, which form a film around the drops. In order that such particles have the power of forming an emulsion, they must have only a slight tendency to agglomerate, they must be more readily wetted by the water than by the oil, and they must not be crystalline."

A few months later, Donnan[18] comments on Pickering's paper as follows:

" In a recent article, S. U. Pickering discusses the theory of emulsions, and apparently comes to the conclusion that surface tension has very little to do with the phenomenon of emulsification and that emulsions owe their formation chiefly to solid particles. S. U. Pickering has made no accurate measurements on this point and seems also not to know about the close relation between surface adsorption and lowering of the surface tension. He also does not consider the electrical forces which we know to be acting. We do not believe that the true nature of emulsions is explained by S. U. Pickering's theory of solid particles."

In 1911, Ellis[19] prepared theoretical emulsions of lubricating oil and water only, and worked on the electrical charge of the particles and their migration. The paper does not add much to our knowledge of actual emulsions, working as Ellis does with an emulsion containing only about one part of oil in 10,000 of water.

Pharmaceutical text-books invariably refer to milk as the type of perfect emulsion, and for this reason it is interesting to note what Bancroft[20] says on this point.

"It is a common thing for people to speak of milk as a perfect emulsion; but the facts do not warrant this. Cream starts to rise almost at once, and nobody would call a synthetic emulsion a success which went to pieces as quickly as milk does. By passing milk through a homogenizer, and thus decreasing the size of the globules, man improves on nature so far as the stability of the emulsion is concerned."

Bancroft[21] states that Mr. C. E. Swett called his attention to the fact that wool fat forms an emulsion with water in which water is present as the internal phase. He quotes Lewkowitsch in the "Chemical Technology and Analysis of Oils, Fats and Waxes." "Although insoluble in water, wool wax possesses the remarkable property of absorbing larger quantities of water than any other wax. The emulsion it forms with water has the appearance of a perfectly homogeneous mass. This wool wax can be mixed with as much as 80 percent of water."

Further on Bancroft writes, "It was also found that water emulsifies in commercial linseed oil, this undoubtedly being due to the rosin content of the oil. Since there are said to be 70,000,000 gallons of mixed paints used in the United States, this type of emulsion (water in oil) is unquestionably the more important one commercially, and it is rather extraordinary that the writers on emulsions should have overlooked this important industry."

F. R. Newman,[22] working in Bancroft's laboratory, did some admirable work in the study of the nature of emulsions and the identification of the phases. He brings out the three methods for determining which of two liquids is the external phase in an emulsion. They are the unsatisfactory inspection method, the fairly good Robertson's Soudan III dye method, which has already been taken up, and finally, Briggs' drop method. The latter consists in placing a drop of emulsion on a glass plate by means of a rod, and adding a drop of water on top of the drop of emulsion. The two are stirred together. If the emulsified globules spread in water, it is an emulsion of oil in water, but if there is no spreading, it is an emulsion of water in oil. The principle involved is that one can dilute an emulsion by adding more of the external phase.

Of the many other interesting points in Newman's paper, only a few can be taken up here. They are as follows:

"Magnesium oleate is the best emulsifying agent yet tried for making an emulsion of water in benzene. The emulsions are much more stable if a little sodium oleate is also present.

"In mixed paints, water is the internal phase and oil the external one. By shaking commercial white lead together with raw linseed oil and water, a water-in-oil emulsion was obtained containing 87.5 per cent. water and 12.5 per cent. oil by volume.

"Whether one liquid is emulsified in the second, or the second in the first, depends upon the nature of the emulsifier." A hydrophile (affinity for water) colloid, like gum arabic, sodium oleate, etc., will tend to make water the external phase. A hydrophobe (aversion for water) colloid, like magnesium oleate, rubber, etc., will tend to make water the internal phase.

In 1915, T. R. Briggs,[23] and a short time after, Briggs and Schmidt,[24] published two very thorough pieces of work on benzene emulsions, although no new theory was introduced. Briggs also devised a simple method for homogenizing emulsions.

The last word in the theory of emulsions comes from no less an authority than Martin H. Fischer,[25] who, in conjunction with Miss M. O. Hooker, publishes in Science of March 31, 1916, an article entitled, "On the Physical Chemistry of Emulsions and its Bearing on Physiological and Pathological Problems," the details of which are soon to appear in the Kolloid-Zeitschrift. Fischer's article, in the estimation of the writer, is the most remarkable and most interesting paper contributed to the subject of emulsions, first, because of the formulation of a brand-new theory, and, secondly, because of its ingenious applications in physiological problems.

Part I consists of a brief discourse on our knowledge of the emulsion theories. It shows that the low-surface-tension theory, the high-viscosity theory and Pickering's theory of films of insoluble particles are admittedly inadequate, and that each plays its part in selected cases of emulsions.

Part II begins as follows: "In reviewing the empirical instructions available for the preparation of emulsions, and in our own attempts to formulate such as would always yield good results, we were struck with the fact that their production is always associated with the discovery of a method whereby *the water (or other medium) which is to act as the dispersing agent is all used in the formation of a colloid hydration (solvation) compound.* In other words, when it is said that the addition of soap favors the formation and stabilization of a division of oil in water, it really means that soap is a hydrophilic colloid which, with water, forms a colloid hydrate with certain physical characteristics, and the oil is divided in this. *The resulting mixture cannot, therefore, be looked upon as a subdivision of oil in water, but rather as one of oil in a hydrated colloid.*"

Part III deals with the cracking of emulsions, and this general statement is made: "An emulsion breaks whenever the hydrophilic colloid which holds the aqueous dispersion means is either diluted beyond the point at which it can take up all the offered water, or is so influenced by external conditions that its original capacity for holding water is sufficiently reduced."

Part IV deals with the application of this new theory to an explanation of fatty degeneration. In part it states: "While the fat in the cells of the body is not ordinarily visible in the state in which it exists there normally, certain pathological conditions popularly termed 'fatty infiltration' or 'fatty degeneration' suffice to make the fat readily visible. . . . In the majority of instances, chemical analysis fails to show that the affected cells contain any more than their normal fat content. *In essence, therefore, 'fatty degeneration' no longer represents a chemical, but a physical problem, which asks how a given quantity of fat usually so distributed in a cell as to be invisible, becomes redistributed in such fashion as to be readily visible.*

". . . Seven percent potassium soap and cotton-seed oil, for instance, are both relatively mobile liquids, but when mixed in proper proportion they yield an emulsion so stiff that it will stand alone. This is the analogue of the 25 percent emulsion of fat and lipoid which we call the brain. If the oil-in-soap emulsion is broken through the addition of a little acid, it yields an impure mixture of oil, water and precipitated colloid material—the analogue of the liquid contents found in any area of brain 'softening.'"

In the face of all this work which has been done on emulsions, is not our definition of an emulsion, as given in most pharmaceutical texts, wholly inadequate and entirely too narrow? We read in our texts that, "Emulsions are aqueous liquid preparations in which oily or resinous liquids are suspended by the agency of gummy or viscid substances." Let us analyze the definition:

"*Emulsions are aqueous liquids.* . . ." The official hydrous wool fat is an emulsion of water (or, according to Fischer, an emulsion of a hydrated colloid) in wax. This is not an aqueous liquid. ". . . *in which oily or resinous liquids are suspended.* . . . " We have the official emulsion of chloroform, and surely chloroform is not an oily or resinous liquid. Also, as has been shown, many of our emulsions are suspensions of water in oils. ". . . *by the agency of gummy or viscid substances.*" . . . It has been seen that very dilute soap solutions, precipitates of basic sulphates, and many other substances which are not viscid or gummy, have been used as emulsifying agents with success. Their successful use in pharmacy is only a matter of experiment and application.

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REFERENCES.

[1] Sitzungsber. Akad. Wiss. Wien., *61*, II, 362, 1875.
[2] Pogg. Ann., *141*, 44, 1870.
[3] Jour. Chem. Soc., *26*, 194, 1873.
[4] Archiv. Anat. Physiol., 1878, 181.
[5] Jour. Chem. Soc., *38*, 273, 1880.
[6] Wied. Ann., *35*, 589, 1888.
[7] Jour. Physiol., *12*, 72, 1891.
[8] Proc. Physiol. Soc., London, 54, 1898.
[9] Zeit. phys. Chem., *31*, 42, 1899.
[10] Jour. Amer. Chem. Soc., *25*, 513, 1903.
[11] Zeit. phys. Chem., *58*, 409, 1907.
[12] Jour. Chem. Soc., *91*, 2001, 1907.
[13] Zeit. Kolloidchemie, *3*, 270, 1908.
[14] Comptes rendus, *146*, 484, 1908.
[15] Zeit. Kolloidchemie, *4*, 211, 1909.
[16] Ibid., *7*, 7, 1910.
[17] Ibid., *7*, 11, 1910.
[18] Ibid., *7*, 214, 1910.
[19] Zeit. phys. Chem., *78*, 352, 1911.
[20] Jour. Phys. Chem., *16*, 367, 1912.
[21] Ibid., *17*, 501, 1913.
[22] Ibid., *18*, 34, 1914.
[23] Ibid., *19*, 210, 1915.
[24] Ibid., *19*, 478, 1915.
[25] Science, *43*, 468, 1916.

SOME EXPERIMENTS IN FILTRATION.*

BY WILBUR L. SCOVILLE.

It has long been known that in the filtration of solutions of solids through paper there is a slight absorption [1] of the solid by the paper and consequently a change in the strength of the solution. This absorption takes place from the first portion of the liquid which passes through the filter, and is so slight that it is disregarded except in close analytical work.

In pharmaceutical operations it is frequently necessary to employ a clarifying agent in addition to filter-paper, and it has seemed desirable to determine whether these agents have a material absorptive action on the solids, sufficient to make a real difference in the strength of the solution.

Since powders used in this way need a filter-paper also, the same size and grade of paper was used throughout the experiments, viz., a 5-inch white filter, holding, when filled, about two fluidounces.

Preliminary tests showed that 500 mils of water will pass through a paper of this size in 4 minutes, the same amount of alcohol in 8¾ minutes, and of diluted alcohol in 12 minutes.

Double filters required almost exactly twice as much time in each instance.

The clarifying agents chosen were paper pulp, purified talc, infusorial earth, and fullers' earth. Two hundred and fifty mils of solution was filtered through each of these, using 2 Gm. of paper pulp or 5 Gm. of powder for each experiment. The infusorial earth was free from carbonate, and yielded only a trace of soluble matter to water or diluted alcohol.

The conditions of filtration were the ordinary methods of pharmacy, the powder being mixed with about 50 mils of the solution and the mixture poured on the filter, to be followed as needed by the rest of the solution until all had passed through. Unless filtration was extremely slow, the funnel was not covered. Paper pulp was moistened with the solution, packed firmly in the apex of the funnel, and the solution poured upon it, no filter-paper being needed with this agent.

Three types of solutions were employed, namely, a neutral aqueous solution, an acidulated aqueous solution—usually containing one percent of citric acid—and a neutral solution in diluted alcohol.

The strengths of the various solutions corresponded to the usual strengths employed in pharmacy or medicine.

The following tables show the results, the strengths being indicated by grammes per 100 mils, and the changes in percentage.

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* Read before the Section on Practical Pharmacy and Dispensing, A. Ph. A., San Francisco meeting.

[1] After considerable discussion of the paper a motion was passed asking that the Scientific Section take the matter of absorption in filtration under consideration and solicit papers on the subject.

Quinine Hydrochloride Solution, 2 Percent.
(Strength Stated as Anhydrous Quinine.)
(Acid Solution Containing 0.5 Percent Free Hydrochloric Acid.)

	Aqueous, Neutral			Aqueous, Acid			Alcoholic		
	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent
Paper pulp.......	1.706	1.706	00	1.700	1.696	− 0.2	1.672	1.624	− 2.8
Purified talc......	1.706	1.676	− 1.1	1.700	1.690	− 0.6	1.672	1.670	− 0.01
Infusorial earth....	1.706	1.644	− 3.6	1.700	1.674	− 1.5	1.672	1.672	0.00
Fullers' earth.....	1.706	1.112	−34.8	1.700	1.326	−22.1	1.672	1.232	−26.2

Strychnine Sulphate, 1.28 Percent.
(Corresponding to 1.0 Percent Strychnine Alkaloid.)
(Acid Solution Containing 1 Percent Free Citric Acid.)

	Aqueous, Neutral			Aqueous, Acid			Alcoholic		
	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent
Paper pulp.......	1.000	0.989	− 1.1	1.000	0.995	− 0.5	1.000	0.995	− 0.5
Purified talc......	1.000	0.996	− 0.7	1.000	0.996	− 0.4	1.000	1.009	+ 0.9
Infusorial earth....	1.000	0.973	− 2.7	1.000	0.960	− 3.5	1.000	1.046	+ 4.6
Fullers' earth.....	1.000	0.000	−100	1.000	0.000	−100	1.000	0.004	−99.6

Caffeine.
(Acid Solution Corresponding to Citrated Caffeine.)

	Aqueous, Neutral			Aqueous, Acid			Alcoholic		
	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent
Paper pulp.......	0.788	0.788	00	0.785	0.785	00	0.781	0.781	00
Purified talc......	0.788	0.784	− 0.5	0.785	0.780	− 1.0	0.781	0.785	+ 0.56
Infusorial earth....	0.788	0.789	+	0.785	0.790	+ 0.6	0.781	0.783	+ 0.3
Fullers' earth.....	0.788	0.486	−35.3	0.785	0.466	−40.9	0.781	0.540	−31.5

Morphine Sulphate, 1.5 Percent.
(Corresponding to About 1.25 Gm. of Crystallized Morphine Per 100 Mils.)

	Aqueous, Neutral			Aqueous, Acid			Alcoholic		
	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent
Purified talc......	1.242	1.2055	− 3.0	1.253	1.251	− 0.2	1.231	1.248	+ 1.3
Infusorial earth....	1.242	1.188	− 4.4	1.253	1.141	− 9.0	1.231	1.262	+ 2.5
Fullers' earth.....	1.242	0.700	−43.7	1.253	0.718	−42.7	1.231	0.757	−38.5

Atropine Sulphate, 0.7 Percent.

(Corresponding to 0.400 Gm. of Alkaloid Per 100 Mils.)

Agent	Aqueous, Neutral			Aqueous, Acid			Alcoholic		
	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent
Paper pulp......	0.400	0.397	− 0.7	0.400	0.397	− 0.7	0.400	0.393	− 1.7
Purified talc......	0.400	0.377	− 5.7	0.400	0.377	− 5.7	0.400	0.388	− 3.0
Infusorial earth....	0.400	0.361	− 9.7	0.400	0.380	− 5.0	0.400	0.415	+ 4.0
Fullers' earth.....	0.400	0.00	−100	0.400	0.00	−100	0.400	0.00	−100

Acetanilid.

	35 percent alcohol solution			49 percent alcohol solution		
	Original solution	Filtrate	Change, percent	Original solution	Filtrate	Change, percent
Paper pulp.....................	.....	.....	......	3.400	3.420	+0.5
Purified talc.....................	3.420	3.260	− 4.7	3.400	3.400	0.0
Infusorial earth..................	3.420	2.430	−29.0	3.400	3.505	+3.0
Fullers' earth....................	3.420	2.964	−13.4	3.400	3.350	−1.5

Two things are clear in these results. First, that excessive amounts of any filtering medium mean a loss in strength of the solution, and this loss is the greater the nearer the solution is to its saturation point. Weak solutions may show little or even no loss, while strong solutions show a considerable loss.

Second, fullers' earth is decidedly absorptive to alkaloidal solutions, but less so to neutral bodies. It will be noticed that the strychnine and atropine were entirely removed from solution by this agent, while other alkaloidal solutions lost a quarter to nearly half their strength.

These figures would doubtless vary with the proportion of earth employed, but even in small portions it will cause a loss.

The other three agents, paper pulp, purified talc, and infusorial earth, probably do not differ very much in their absorptive power, but they differ in their adaptability.

Paper pulp was found to filter quite readily, if not packed too firmly. It occasions little loss, but is not so efficient a clarifying agent as the powders.

In comparing talc with infusorial earth there is first to be noted that, while equal weights (5 Gm.) of these agents were used in the experiments, the infusorial earth is so much lighter than talc that more than twice as much, in bulk, of the earth was used and consequently the absorption appears greater.

Filtration was also much slower through the infusorial earth, and in the case of the alcoholic solutions the loss by evaporation from the filter more than counterbalances the loss by absorption, and the filtrates frequently show a gain in strength. Even when equal bulks of these two agents are used, infusorial earth is less than a quarter as rapid in action as talc, and, except for work in a filter press, is much less desirable as a clarifying medium.

Another factor to be observed in considering infusorial earth is that much of it contains carbonates, and even when these are not soluble in neutral liquids they may react with substances in solution.

In an experiment made in the early part of this investigation in which 1 percent solutions of strychnine (as sulphate) lost 49.1 percent, 42.6 percent, and 36.1 percent of their strength, respectively, the losses were found to be due to the presence of carbonate in the earth, though the carbonate was not sufficiently soluble in distilled water to produce an alkaline reaction.

For general use purified talc is the most satisfactory clarifying medium for pharmaceutical purposes, but care should be taken to avoid loss both of the solution and of strength, by excess. The smallest quantity that will do the work should be employed, both for economic reasons and for standard results.

Another point suggested by these experiments is that in making preparations which need to be clarified it is safer to adjust the final volume before clarifying than to make up to the full yield by passing enough menstruum through the filter to obtain it. Since the material absorbed in the filter is richer in dissolved or absorbed substances than the filtrate, washing with a relatively small amount of menstruum is not likely to displace it entirely, and the product is so much the weaker. The loss of a small portion of the product is better than the weakening of the whole.

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PERFUMES.*

BASIC MATERIALS, PRODUCTION, PRESERVATION AND SELLING POINTS.

BY WILLIAM A. HALL.

In considering this subject, I am impelled chiefly to throw what light I can for an educative effect, and from that, by deduction and the experience such statements as may, if followed, result in a better understanding of this article of commerce, the limitations and means to be taken for our financial benefit.

From the earliest written records the item of *perfumes* has ever played an important part and always has it seemed to be not merely a luxury but a necessity. Writers have vied with each other in describing the art of perfume manufacturing, and many uses to which the products were put. From sage to savage, from ruler to the humblest citizen, has come the demand for this invisible scent or perfume, and to furnish it have collector's, chemists, steam and sail, perfumer and dealer been requisitioned.

The crude methods of the ancients have yielded to the refined processes of the present, but the facts are as true to-day as of yore, and emphasis should be laid here that the floral odors, as produced by Nature and conserved by man, cannot be successfully supplanted by the synthetical coal-tar products of the present, so freely exploited.

Rankness, as against fragrance, variation *vs.* stability, greater present profit *vs.* permanent future business, you may have, but who wishes to exchange the promise for the reality, when it comes to our commercial efforts?

If one rose is fair and sweet, as is universally acknowledged, think of nineteen hundred sixty tones of roses, the product of one season, in the Valley of Var in the south of France; think of one hundred tons of roses a day, often gathered at Grasse, the rose centre of that region.

At Grasse, they use three thousand pounds of rose leaves to make a pound of attar or *otto of roses,* the well-known oil distilled from the fragrant petals, and into every ounce of the rich essence is concentrated the odor of 400,000 roses, so that to make the whole pound it would take nearly half a million roses. The pound of French attar sells for as much as three hundred dollars; at retail, by the ounce or drop, the quantity in which it is more frequently sold, it would bring a great many times as much as that sum.

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* Read before the Section on Commercial Interests, A. Ph. A., San Francisco meeting.

Many flowers are made into the perfumes of commerce, but the rose has ever been the queen of the perfume market of the world, as she is of every garden. From the earliest times, the fragrance of the roses of the Persian summers has been distilled for the delight of the whole year round. Later on, they began to cultivate roses in Turkey for the same purpose, and so in India, till down to the present time, when, though these older countries still furnish some share of the entire output, the greater part of the flower perfume supply comes from the fields of Bulgaria and France, the quality of France's product being recognized at the present time as superior to that of any other country in the world.

If the Valley of Damascus and the Vale of Cashmere deserve the fame that the poets have given them for their production of sweet scents, certainly Grasse is the spot to which the modern writer, to whom the sentiment of fragrant odor appeals, should go for inspiration. Grasse is the principal centre of the raw perfume trade of Europe, and through its steep and narrow streets have been carried every year, for centuries, the tons of rich substance heavily charged with the concentrated essences extracted in its factories from the blossoms gathered in the fields. It is said that the famous Catherine de Medici was the one who first discerned the possibilities of Grasse as a perfume centre, and that she gave the order for roses to be planted there for commercial purposes, and for the establishment of perfume factories in the place.

Though the output of roses is one of the greatest flower products of the place, there are many other flowers grown for market in the fields of Grasse. Among the crops next in importance are those of the violet, jasmine and neroli, which is the oil of the bitter orange flower. The crops are produced in regular succession by the flower farmers, just as ordinary peas and potatoes would be brought forward, each vegetable in its season, and the flowers are gathered and marketed with the same system that the truck farmer employs to dispose of what he has produced.

The fragrant harvest of this neighborhood, beginning in January with the violet and lasting late in the fall, gives employment to a great number of persons, mostly women and girls.

The rose that is grown at Grasse for the manufacture of perfume is a pink rose known in the neighborhood as "Rose de Mai." This is botanically the *R. Centifolia,* no doubt the same as the old-fashioned "Hundred-leaved Rose" of our gardens. The rose that is used in Bulgaria is the famous red Damask Rose, which originated in Persia, and was also very familiar to our gardens in days of the past, if it is not to be found there at the present time.

The Grasse farmer sets his bushes out in rows, not too close to each other, on ground gently sloping to the southeast, if possible. The young shoots are taken from a five-year-old bush, and are planted in the ground, which has been well broken up to a depth of three or four feet. When the plants begin to branch out, the tops are cut off about a foot from the ground. The buds that come out the first year are picked off so that none of the vitality of the plant may be spent in blossoming at that time.

By the fourth or fifth year, the rose bushes in the fields are in full yielding condition. A rosebush, though it lives to a good age, does not yield much after its seventh year; at that period the Grasse farmer digs up his bushes and burns them. The land is then planted with some other crop for the space of a year, and then set out with roses again.

The rose harvest begins about the middle of April and lasts through May to early June. The time is so short and the blossoms come in such profusion that, even with the immense number of harvesters employed, great difficulty is experienced in dealing with the crop, especially as the orange flower harvest comes in at the same time. The roses must be carried to the factory at once and immediately used, or great loss of perfume occurs. The buds, on the point of opening, are picked in the early morning and dropped into baskets, each holding two bushels of flowers, which are carried on the arms of the pickers. The picking goes on until about ten or eleven o'clock, or all day if the weather happens to be cloudy. When the sun is hottest, no flowers are gathered, but toward four or five o'clock in the afternoon they begin again, and keep on until dark.

At the factory, the petals are first completely separated from the green parts and the pistil of the flower, the pink petals with the central yellow stamens being all that will produce any perfume.

Heaps of as much as four tons of these will sometimes be piled upon the floor of the factory at one time. The petals, after they are separated from the rest of the flower, are then either distilled with water for the production of attar and rosewater, or they are subjected to the process of maceration in warm fat or olive oil, for the purpose of obtaining the perfumed pomade or scented oil from which the bottled perfume is finally made.

This pomade gives the true scent of the blossoms. With attar of roses and rosewater the most delicate odor of the petals is destroyed by contact with boiling water, but with the pomade the grease absorbs the fragrance perfectly and it is afterward taken up by the solvent that is used to extract it. Formerly the olive oil was used for absorbing the scent directly from the blossoms, but now fat or ceresene is the macerating agent. The best fat for the purpose is beef suet mixed with lard of corn-fed pigs.

Some flowers, like the tuberose and jasmine, being especially delicate, have their odor destroyed altogether by contact with even a low degree of heat, so the scent of these is obtained by a cold process, a layer of flowers being placed upon one of refined lard, so that the odor may be extracted gradually by the cold grease.

The success of the pomade from which the perfume is made depends upon the absolute purity of the fat that is used. To bring it to a suitable condition, it is "pan-rendered" by dry steam and afterward washed and washed with various substances and manipulated according to the judgment and experience of the manufacturer until the grease has lost all trace of its animal origin and seems as pure and sweet as the roses themselves.

To make the rose pomade, one hundred-weight of the prepared fat is placed in a tinned copper vessel capable of holding five hundred-weight and melted by means of a water-bath or steam jacket. About one hundred-weight of the flower petals are added and stirred in with a wooden spatula. They are left for a day, being stirred occasionally, and then strained off. More roses are then put in the same pomade, stirred and left in the same way, and so on, until the grease is fully impregnated with the odor of the flowers.

When the pomade is fully scented, the clean upper part, free from impurities, is poured off into the canisters, and then is ready for sale or for immediate use in making the extract. This is done by heating up the purified pomade with refined cologne spirits. The spirits and pomade, kept constantly stirred by a special apparatus, are left together for from three days to a week, until the liquid has taken up all the scent previously absorbed by the fat from the flowers. The fat and liquid are then separated, the one being of no further use now, except for soap making, while the other is just ready to begin an important career. The perfumer does not take the rose extract as it is obtained from the pomade to make rose perfume, nor violet, nor jasmine, nor any other flower that blows. He combines these extracts with each other and with certain animal perfumes, like musk or ambergris, or with fragrant resins, gums and spices known to those of his craft. One scent is made predominant and characteristic of the mixture; the rest give it body and permanence.

It is a fragrant experience to go, at any time, into a perfume factory, and there are large establishments of this kind to be found in the United States.

The quality of the products of our first-class perfumers is gradually convincing the public of the value of the best American perfumes, though people were slow to believe that anything as fine as the imported extracts could be produced at home. There are certainly perfumes produced in this country which rival, if they do not surpass, the products of the foreign manufacturers, but it is doubtful if the flowers used in making them can ever be grown in the United States. There is no country like the south of France for bringing to perfection the scented blossoms that are desirable for making the best perfumes, so that the American perfumer still imports his pomade from the south of France, and confines his skill to perfecting the combinations that will produce the most fragrant, refreshing and lasting results; and in this he starts even with the Parisian perfumer himself.

Musk is one of the animal perfumes most commonly used to give permanence to the more volatile scents of flowers. A small portion of musk mixed with violet or rose extracts, in connection with such other ingredients as the perfumer's art suggests, attains this object without detracting from the delicacy of the desired odor. While musk is used to a limited extent, as such, by a few, and in some cases by a connoisseur, seldom do persons of good taste use it these days, except unconsciously in the inoffensive quantities that are combined with the special odors of rose, violet, heliotrope, and other flowers which form the basis of a preferred perfume.

Musk is the product of the musk deer, which is found in China and Thibet, and is worth from $20 to $40 an ounce. Another expensive animal product which adds its sweet scent to flower combinations is ambergris, which is a formation taken from diseased sperm whales, while civet, also used in perfume-making, is obtained from an animal of the cat family, found in Abyssinia and the Soudan. These are not all, but the chief animal products used in perfumes.

Having wisely selected a good line of natural odors and placed them in stock, protect them as well as possible from heat and light and from the accumulation of dust and dirt. Frequently clean thoroughly the stoppers and necks of your open bulk extracts. It is desirable to have an enclosed wall case, protected from too strong a light, where all opened bulk extracts can be kept; and not too large a line carried—ten or twelve of the best odors of a first-class maker are sufficient to feature, with, perhaps, the specialities of other makers, providing the demand is created by personal call and not by free goods or special inducements. This case should be large enough so that in the bottom of same can be kept small bottles, 1½ drachms, ½ oz., 1 oz. and 2 oz. capacity, cleaned, corked and labelled in blank, but not filled until the sale, when you can fill directly from the bulk bottle, thus avoiding the use of the graduate commonly taken for all perfumes, and write in the name on the label. Never pour the dregs of an old bottle into a freshly opened one, and you avoid a common cause of deterioration of bulk extracts.

SELLING POINTS.

The demonstrators in large stores have their uses in many lines of goods and with a complete toilet line are more or less successful, but I believe the friend-to-friend advertising of good goods, when it comes to perfumes, is really more effective. The enormous number of petty grafters in the body politic for " samples " without purchase detracts from the demonstrator's success. Instead of the shotgun, why not use the rifle? Get up *yourself* a letter, carefully choosing your language, saying just what you wish and *no more* and send to your select trade on excellent stationery, well printed, under 2 cents postage.

The successful seller of perfumes should have a good *general* knowledge and all the *special* knowledge he can acquire. The tactful salesman shows the perfumes in the most convincing manner, as judgment dictates.

In showing the goods to a customer, find out, if possible, what the customer wants. If a rose, show him a rose, either from the point of the stopper with the spirit evaporated, a bit of clean absorbent cotton, or thin rice paper. Clean cigarette papers are good. Never show the perfume by placing on the hand, especially if you wish to show another odor. If the customer has no choice, then it is up to you to show him, by a similar method, some perfume that he knows has been successful. One must also have enthusiasm to sell perfumes, and the better the goods, the more lasting the result. Having made the sale, deliver the goods in as neat a package as you can, to convey all along the line all the artistic effect possible.

My experience of over thirty years tells me the synthetic odors, or a poor line, do not begin to have the power as a tradeholder that the natural floral odors do; also the latter excels as a business getter and business builder. " You cannot make a silk purse out of a sow's ear." There are reasons for this, too. The synthetic, in a relatively short time, undergoes a change, even to the breaking-up point, while the natural, especially if kept under proper conditions, holds for a long time, with but little change, in the bulk goods. A familiar example is solution of vanillin and tincture of vanilla. The former goes back, while the latter improves with age.

Featuring the product of one first-class line, as indicated in this paper, caused me to buy of that line the past three years: 1912, $295; 1913, $411; 1914, $315. I am indebted to one perfume manufacturer for some of the information given, but who requested his name should not be mentioned.

TECHNICAL DRUG STUDIES: II. ON THE STABILITY OF SPIRIT OF NITROUS ETHER.*

BY L. F. KEBLER, S. PALKIN, AND C. O. EWING.

The stability of spirit of nitrous ether under various conditions of preparation and storage has been studied by a number of investigators.[1] It has been generally found that by observing certain very ordinary precautions, it is possible to keep this product for a considerable length of time without material change and that its alleged unstability has been exaggerated. Yet notwithstanding the general conclusions arrived at and published in various pharmaceutical and chemical journals, an examination of a large number of samples collected from retailers and manufacturers has disclosed a great many which varied from the legal standard. It was, therefore, deemed advisable to make an investigation of the keeping qualities of this product under conditions obtaining in most drug stores, as well as under modified conditions suggested by previous investigators.

The series of experiments was formulated to test out the following points:

1. Does the water and other foreign material commonly present in U. S. P. alcohol materially hasten the decomposition of the spirit of nitrous ether?
2. Does the use of absolute alcohol increase its stability?
3. Is refrigeration necessary?
4. Does potassium bicarbonate by neutralizing the acidity retard decomposition?
5. Are small (individual) containers preferable to large stock bottles?
6. Does frequent opening of large stock containers and a large air space above the spirit hasten deterioration?
7. What time limit ought to be set on the keeping of this product?

Twelve sets of samples of two general types were prepared: (*a*) seven made up with U. S. P. alcohol (95.5 percent) and (*b*) five made up with U. S. P. absolute alcohol. In view of the fact that a very large percent of the spirit of nitrous ether is made by diluting concentrated ethyl nitrite (90 percent), this was used as a basis for the experiments. The entire quantity for each type of experiment was prepared in a large container by diluting the concentrated ethyl nitrite in the one case with U. S. P. alcohol and in the other with absolute alcohol U. S. P. These were then assayed by the U. S. P. method and bottled. In order to avoid loss by evaporation when distributing the product into the various containers, a syphon with a ground-glass stop-cock was prepared and each container then filled from the large container by means of this syphon.

The following sets of experiments were prepared from the U. S. P (95.5 percent) alcohol (Type *A*):

No. 1. Ten 30 mil, amber-colored bottles, kept on a shelf in the laboratory, exposed to diffused light.

No. 2. Ten 30 mil, amber-colored bottles, containing a small quantity of potassium bicarbonate, kept on a shelf, exposed to diffused light.

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* Presented January 26, 1916, at the City of Washington Branch of the American Pharmaceutical Association.

[1] J. E. Stacy, Proc. Mass. Pharm. Assoc. (1899), 53. Farr and Wright, Trans. Brit. Pharm. Conf. (1901), 447. D. Gilmore, Pharm. Jour., 66, 54 (1901). B. O. Leubner, Merck's Report, 11, 344 (1902). G. E. Shaw, Pharm. Jour., 71, 236 (1903). L. A. Brown, Amer. Drug., 59, 215 (1911). J. R. Rippetoe, Amer. Drug., 59, 307 (1911). C. B. Jordan, Proc. Ind. Pharm. Assoc. (1912), 53. F. L. Shannon, Jour. Amer. Pharm. Assoc., 2, 83 (1913).

No. 3. Ten 30 mil, flint bottles kept in diffused light.
No. 4. Ten 30 mil, flint bottles kept in a refrigerator.

No. 5. One 360 mil, amber-colored bottle, exposed to diffused light.
No. 6. One 360 mil, amber-colored bottle containing some potassium bicarbonate, kept in diffused light.
No. 7. One 360 mil, flint bottle kept in a refrigerator.

The following sets were prepared from the absolute alcohol, U. S. P. (Type *B*):

No. 8. Ten 30 mil, flint bottles kept in a refrigerator.
No. 9. Ten 30 mil, flint bottles kept in diffused light.
No. 10. One 30 mil, amber-colored bottle kept in diffused light.

No. 11. One 360 mil, flint bottle kept in a refrigerator.
No. 12. Ten 360 mil, amber-colored bottles exposed to diffused light.

As no hydrolytic action was expected in the sets of Type *B*, it was not thought necessary to try any experiments using $KHCO_3$ to counteract any acid formed.

All bottles were stoppered with paraffined corks. The temperature of the refrigerator in which Nos. 4, 7, 8, and 11 were stored ranged from about 8° to 15° C., and that of the room in which the other samples were kept from about 20° to 32° C.

The assay before bottling showed *A* to contain 4.56 percent of ethyl nitrite and *B*, 4.68 percent. Inasmuch as the purpose of the experiments was to study the deterioration of the product, it was not thought necessary to dilute it to 4 percent, the minimum U. S. P. strength. In fact, the test would seem to be all the more rigid when using a product of higher strength.

The following table shows the results of the assays of the various samples, made from time to time. In all cases the U. S. P. method was used.

INFLUENCE OF STORAGE ON SPIRIT OF NITROUS ETHER.

	A (U. S. P. 95.5 percent Alcohol).							*B* (U. S. P. Absolute Alcohol).					
	1	2	3	4	5	6	7	8	9	10	11	12
Type of container	Small amber	Small amber	Small white	Small white	Large amber	Large amber	Large white	Small white	Small white	Large amber	Large white	Small amber
Condition of storage	Light	Light $KHCO_3$	Light	Refrig.	Light	Light $KHCO_3$	Refrig.	Refrig.	Light	Light	Refrig.	Light
1914												
May 27.....	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.68	4.68	4.68	4.68	4.68
June 30.....	4.52	4.51	4.57	4.53	4.58	4.60	4.58	4.69	4.64	4.71	4.65	4.74
July 30.....	4.39	4.10*	4.27	4.51	4.59	4.51	4.39	4.55	4.64	4.67	4.76	4.50
Aug. 31....	4.41	4.62	4.34	4.35	4.31	4.59	4.42	4.51	4.47	4.6	4.68	4.57
Nov. 28....	4.46	4.57	4.19	4.43	3.08*	4.39	4.32	4.50	4.31	4.61	4.71	4.46
1915												
July 22.....	4.15	4.48	3.79	4.35	0.26*	3.97	4.35	4.58	3.10	4.62	4.60	4.48
Aug. 22.....	3.67	4.28	3.58	4.38	0.23*	4.01	4.06	4.59	3.77	4.21	4.61	4.46
Sept. 28....	3.06	4.22	3.54	4.4	0.25*	3.19	3.98	4.56	3.64	4.17	4.51	2.93
Nov. 2......	3.07	4.20	3.50	4.54	**	**	3.82	4.60	4.10	3.76	4.59	4.65
Nov. 28....	**	**	3.83	4.53	**	**	3.96	4.56	3.84	**	4.60	4.14

* Cork loose.
** Material exhausted.

The results can perhaps best be appreciated by considering the different intervals of time that elapsed during the experiment. For the first three months it might be said that all samples kept well whether U. S. P. (95.5 percent) or absolute alcohol was used; whether kept in diffused light at ordinary temperature or in a refrigerator; with or without potassium bicarbonate; in small filled (individual) bottles or in large bottles. The material in the large amber bottle kept in diffused light showed the greatest loss, but this was only 0.25 percent of ethyl nitrite. In this case it was found that the cork did not fit tightly, and still later in the experiments it was found to be quite loose.

When kept for six months, it might be said that all, with the exception of No. 5 (which had the cork loose) and Nos. 3 and 9 kept very well. The greatest deterioration (in Nos. 3 and 9) was 0.37 percent, or about 8 percent of the original ethyl nitrite.

When kept for somewhat over a year (fourteen months in these experiments), under conditions observed in Nos. 2, 4, and 7 of Type *A* and Nos. 8, 10, 11, and 12 of Type *B*, the results showed that the losses came within a reasonable variation. Both small and large amber bottles of Type *B* stored under ordinary conditions of temperature and light kept well. This was also true of the small amber containers of Type *A* with potassium bicarbonate. However, it is not believed to be desirable to keep the product a year before dispensing.

When kept for a period of over eighteen months, of Type *A* only those stored in small bottles and kept in a refrigerator remained practically unchanged; of Type *B*, both small and large bottles kept in the refrigerator were not subject to any material change, and there seems to be no doubt that the product kept under those conditions would have stood much longer without change. Lack of material prevented the continuation of the experiments to verify this belief.

Quite in accord with the results obtained by earlier experimenters, these observations show that *properly prepared* spirit of nitrous ether is comparatively stable and can be kept without material change much longer than the average pharmacy would ordinarily keep it.

The conclusion might therefore be reached from these experiments, that for all ordinary purposes the U. S. P. spirit of nitrous ether does not offer any great difficulties in order to be kept up to the standard strength, provided it is made up to the proper strength to begin with, carefully bottled and stoppered with paraffined corks. If the spirit is prepared with 95 percent alcohol, it is best to store it in a refrigerator or in small amber containers kept in diffused light. If stored in large amber bottles kept in diffused light, it is best to use absolute alcohol in its preparation.

Concentrated Spirit of Nitrous Ether.—Since spirit of nitrous ether is usually made by diluting concentrated (90 percent) ethyl nitrite with alcohol, it is interesting to note the ethyl nitrite content of four samples, after being stored in a refrigerator for three years. Each sample was obtained from a different manufacturer and was stated to contain 90 percent ethyl nitrite. Samples I, II, and III kept well and presented no difficulty in opening. When diluted and assayed by the U. S. P. method, they yielded 89.6 percent, 92.0 percent, and 93.4 percent, respectively. Sample IV, however, although sealed in amber glass tubes, had partially decomposed. Of the four tubes at hand, three exploded violently when an attempt was made to open them, although they had been cooled in an ice-salt freezing mixture. A strong odor of nitrous acid was also given off. The third tube was less decomposed, although the pressure was such, even after cooling, that some of the contents were expelled. The assay showed only 81.0 percent of ethyl nitrite. The data so far obtained are insufficient to draw any conclusions as to the keeping quality of the concentrated spirit.

COLORIMETRIC ESTIMATION OF IRON IN PHARMACEUTICAL PREPARATIONS.*

BY JOSEPH L. MAYER.

The National Formulary, in addition to giving a formula for beef, iron and wine, solution of iron peptonate, solution iron albuminate, etc., has a note appended to the process stating the approximate quantity of iron contained in the finished product. In view of the fact that the National Formulary is a legal standard, it is necessary to analyze this class of preparations to ascertain whether they are of the proper strength, and as there is no method of assay official, I have for a considerable time employed the following colorimetric method with excellent results:

Ten Cc. beef, iron and wine are diluted with distilled water to 500 Cc.; 5 Cc. of this solution are evaporated and ignited in a platinum dish, 5 Cc. HCl (1–1) added, the material boiled an instant, poured into a 100 Cc. Nessler tube, water added q. s. 100 Cc., 3 drops of $KMnO_4$ solution (5–1000) added to oxidize the iron, and after a few minutes 10 Cc. of KSCN solution (20–1000) added, the color produced being immediately compared with the iron standards.

The iron standards are made up according to the method of D. D. Jackson, by mixing definite quantities of two solutions, one containing potassium platinic chloride and the other cobaltous chloride (Tech. Quar., vol. xiii, No. 4, Dec., 1900, p. 320). Mr. Jackson suggested these for the analysis of water, for which purpose I have employed them for a number of years. The first edition of the "Standard Methods for the Examination of Water and Sewage" of the American Public Health Association contained them, but for some reason, unknown to me, the present second edition of that work has omitted the method. The standards are prepared so that when 100 Cc. of water are taken for analysis, the reading on the tubes indicates at once parts per million (mg. per L.). To determine the accuracy of the method, the following experiments were conducted, the sample employed being beef, iron and wine, the results recorded being the mean of several analyses, all of which yielded extremely close checks:

(*A*) Ten Cc. beef, iron and wine were diluted to 500 Cc., and 5 Cc. of this dilution were evaporated, ignited and treated as above in the colorimetric method. The material matched standard tube 1.75; then since 5 Cc. = tube 1.75 × 100 = the entire 500 Cc. dilution = 175. As the 500 Cc. contained 10 Cc. beef, iron and wine, this, multiplied by 10, equals 1750 for 100 Cc. beef, iron and wine. As the standards are so constructed that the reading gives immediately parts per million when 100 Cc. water is taken for analysis, then 100 Cc. beef, iron and wine would equal 1750 parts per million, or 1750 mg. per 1000 Cc. beef, iron and wine, or 175.0 mg. per 100 Cc. beef, iron and wine. Or, what is simpler, multiply the reading on the standard tube by 100, and when the above quantities of sample are employed, the result will be milligrammes of iron per 100 Cc. of sample. The sample indicated the presence of 0.175 Gm. iron per 100 Cc.

(*B*) Ten Cc. beef, iron and wine were taken, evaporated in a platinum dish on a water-bath, ignited by placing one Bunsen burner under the dish and playing another Bunsen flame, held in the hand, on top of the residue, thus easily ashing the material without any loss through foaming, etc. The dish containing the ash was then placed on the water-bath, 10 Cc. strong hydrochloric acid and 15 Cc. water added, and heated until completely dissolved. This was then filtered through a 9 cm., ashless filter paper into a 400 Cc. nonsol beaker, and the filter washed until free from iron, the solution in the beaker then oxidized by boiling with HNO_3, precipitated with filtered NH_4OH, filtered through a Gooch crucible, washed, dried, ignited and weighed as Fe_2O_3. The weight of $Fe_2O_3 \times .70 \times 10 =$ weight of iron as metallic iron per 100 Cc. The analysis indicated the presence of 0.2765 Gm. iron per 100 Cc. The difference between these figures and those obtained by the colorimetric method being so great, another gravimetric determination was made as follows:

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* Read before the Kings County Pharmaceutical Society, April 11, 1916.

(*C*) Ten Cc. beef, iron and wine were treated as under (*B*), the thoroughly washed precipitate of $Fe_2(OH)_6$ dissolved in hot HCl, the paper thoroughly washed, and the iron again precipitated from the solution, and the analysis completed as under (*B*).

The analysis indicated the presence of 0.2743 Gm. of iron per 100 Cc.

Another determination was made as follows:

(*D*) Ten Cc. beef, iron and wine were diluted with about 100 Cc. distilled water, ammonium chloride, and an excess of NH_4OH added and H_2S passed to saturation. About 10 Cc. ether were added, the material thoroughly stirred while heating on a water-bath, and filtered through a 9 cm. filter (the addition of ether and thorough stirring make the precipitate settle quickly and cause a very rapid filtration), washed thoroughly. The precipitate was then dissolved in HCl, catching the solution in a 400 Cc. nonsol beaker, the paper washed thoroughly and the solution boiled to get rid of H_2S, after which it was oxidized with HNO_3, the iron precipitated and the analysis conducted as under (*B*). The analysis indicated the presence of 0.175 Gm. iron per 100 Cc. of solution.

Another analysis was then made as follows:

(*E*) Ten Cc. beef, iron and wine were ignited and dissolved as under (*B*). This solution was then poured into a porcelain evaporating dish, HNO_3 added to oxidize, boiled and evaporated to dryness on a water-bath. Water was added and the material was again evaporated to dryness. This treatment was repeated until all HNO_3 was expelled, after which the residue was dissolved in HCl, transferred to a 100 Cc. glass-stoppered flask and the assay completed by the U.S.P. Iodometric Method. The analysis indicated the presence of 0.1787 Gm. iron per 100 Cc.

Another analysis was made as follows:

(*F*) Ten Cc. beef, iron and wine were ignited as under (*B*), and the ash carefully moistened with a few drops of HNO_3, evaporated, ignited, and the material dissolved by heating with diluted HCl (10–15), and the determination finished by the U.S.P. Iodometric Method. The analysis indicated the presence of 0.1789 Gm. iron per 100 Cc.

Another determination was made as follows:

(*G*) Ten Cc. beef, iron and wine were ignited and dissolved in HCl as under (*B*). This solution transferred to a 250 Cc. Erlenmeyer flask almost filled with distilled water, heated to almost boiling, H_2S gas passed to saturation, boiled on a gauze (gently at first to avoid loss) until the solution was reduced to about one-half its volume, cooled and titrated with N/10 $KMnO_4$ V.S. until the appearance of a permanent pink tint (Conn. Agr. Exp. Sta., 1907–08, page 685). The analysis indicated the presence of 0.1839 Gm. of iron per 100 Cc.

Another determination was made as follows:

(*H*) Ten Cc. of beef, iron and wine were ignited and dissolved in HCl as under (*B*), the solution reduced with stannous chloride and titrated with N/10 $K_2Cr_2O_7$ as directed in the methods of the U. S. Steel Corporation for the analysis of iron ores (*Journ. Ind. Eng. Chem.*, Feb., 1909, page 107). The analysis indicated the presence of 0.1831 Gm. of iron per 100 Cc. Another determination was made as follows:

(*I*) Ten Cc. beef, iron and wine were ignited and dissolved as under (*B*), the solution reduced with stannous chloride and titrated with N/10 $KMnO_4$, as directed in the methods of the U. S. Steel Corporation for the analysis of iron ores (Journ. Ind. Eng. Chem., Feb., 1909, page 107). The analysis indicated the presence of 0.1776 Gm. iron per 100 Cc.

Another determination was made as follows:

(*J*) Ten Cc. beef, iron and wine were ignited and dissolved as under (*B*), the solution transferred to a 250 Cc. Erlenmeyer flask fitted with a rubber stopper and Bunsen valve, a few crystals of $KClO_3$ added, placed on the hot plate, boiled gently a few minutes, about 2 Gm. of iron-free zinc added (.002 percent Fe), a little sodium carbonate added to expel the air, heated nearly to boiling until the color of the solution was green and entirely free from the slightest tint of yellow. The stopper was then removed and a mixture of 10 Cc. H_2SO_4 and 20 Cc. H_2O added, and, after adding a small amount of sodium carbonate to expel the air, the stopper was replaced and the solution again heated until no undissolved particles of zinc remained. After allowing the solution to cool, it was diluted with cold, recently-boiled, distilled water and titrated with N/10 $KMnO_4$ until the appearance of a pink tint. The analysis indicated the presence of 0.1776 Gm. iron per 100 Cc.

The results by all methods were as follows:

A. 0.175 Gm. iron per 100 Cc. beef, iron and wine.
B. 0.2765 Gm. iron per 100 Cc. beef, iron and wine.
C. 0.2743 Gm. iron per 100 Cc. beef, iron and wine.
D. 0.1750 Gm. iron per 100 Cc. beef, iron and wine.
E. 0.1787 Gm. iron per 100 Cc. beef, iron and wine.
F. 0.1789 Gm. iron per 100 Cc. beef, iron and wine.
G. 0.1839 Gm. iron per 100 Cc. beef, iron and wine.
H. 0.1831 Gm. iron per 100 Cc. beef, iron and wine.
I. 0.1776 Gm. iron per 100 Cc. beef, iron and wine.
J. 0.1776 Gm. iron per 100 Cc. beef, iron and wine.

A glance at the above table will show that all methods excepting (*B*) and (*C*)—both practically identical—yielded the same results, the mean (excluding (*B*) and (*C*)) being 0.1787.

I am at a loss to account for the high results under (*B*) and (*C*), for, if it is assumed that the wine employed in making the beef, iron and wine contained aluminum, or that the precipitate was contaminated with silica dissolved by the alkali from the glass, this same condition should hold for (*D*), where the iron was precipitated with NH_4OH and H_2S, dissolved and reprecipitated with NH_4OH, which, of course, would precipitate aluminum and silica. The precipitations were made in nonsol beakers, the solutions being filtered very rapidly to avoid contamination with the silica of the glass.

The fact that the results by method (*D*) closely check the colorimetric and volumetric methods makes it difficult to explain these high results.

It is clearly proven by these results that the determination of iron in this class of preparations by precipitation, as hydroxide, ignition and weighing, as oxide, is apt to lead to high results and is therefore not a suitable method.

In laboratories equipped with the iron standards, the colorimetric method for the quantitative estimation of iron is extremely accurate, easy to apply and rapid. Should, however, another method be desired, any of the volumetric methods embodied in this paper will give accurate results.

RESEARCH AND ANALYTICAL DEPARTMENT,
RIKER LABORATORIES.

PHARMACOPŒIAL BOTANIC DRUGS OF THE TWENTIETH CENTURY.*

By E. N. Gathercoal.

Latin plant names	English names	Austrian	Belgian	British	Croatian	Danish	French	German	Hungarian	Italian	Japanese	Mexican	Netherlands	Norwegian	Russian	Servian	Spanish	Swedish	Swiss	U. S. P. VIII	U. S. P. IX
(9) Pinus montana																					
(10) Pinus Australis																					
(11) Pinus maritima																					
(12) Abies Sibirica																					
389. Piper angustifolium, lv	Matico											×								×	
390. Piper Betle, lv	Betel			×																	
391. Piper Cubeba, unr. ft	Cubeb	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
392. Piper Cubeba, v. o	Oil of Cubeb			×																×	×
393. Piper officinarum, ft	Long Pepper						×														
394. Piper methysticum, rh	Kava-Kava			×																	
395. Piper nigrum	Black Pepper	×	×								×	×								×	×
396. Pistacia Lentiscus, res	Mastic	×	×		×							×		×		×	×	×		×	
397. Pistacia terebinthus, balsamic, res	Chios Turpentine																				
398. Plantago major, lv	Plantain											×					×				
399. Plantago ovata, s				×																	
400. Plantago psyllium, s	Fleaseed											×					×				
401. Podophyllum Emodi, rh. & rt	Indian Podophyllum			×																	
402. Podophyllum peltatum, rh. & rt	Mandrake		×	×			×			×		×	×				×			×	×
403. Polygala amara, plant	Bitter Polygala					×															
404. Polygala Senega, root	Senega	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
405. Polygonum aviculare, fl. herb	Knotgrass	×																			
406. Polygonum Bistorta, rh	Bistort		×				×														
407. Polyporpus fomentarius, fungus	Surgeon's Agaric	×					×					×									
408. Polyporpus officinalis, fungus	White Agaric	×					×			×		×					×		×		
409. Populus nigra, buds	Black Poplar						×										×				
410. Potentilla Tormentilla, rh	Tormentilla						×												×		
411. Prunus Amygdalus, var. amara, s	Bitter Almond	×	×	×	×	×	×	×	×	×	×	×			×	×	×	×	×	×	
412. Prunus Amygdalus, v. o	Oil of Bit. Almond						×					×		×			×			×	×
413. Prunus Amygdalus, var. dulcis, s	Sweet Almond	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
414. Prunus Amygdalus, both varieties, fo	Sweet Almond Oil		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
415. Prunus armeniaca, s	Apricot Seed										×										
416. Prunus domestica, ft	Prunes												×							×	
417. Prunus Laurocerasus, lv	Cherry Laurel		×	×			×			×			×				×				
418. Prunus Laurocerasus, v. o	Oil of Cherry Laurel												×								
419. Prunus macrophylla, lv											×										
420. Prunus serotina, bk	Wild Cherry Bark			×								×								×	×
421. Psidium Guaiava, lv													×								
422. Pterocarpus Morsupium, ext. wd	Kino			×							×								×	×	×
423. Pterocarpus santalinus, ht.wd	Red Saunders	×		×							×		×				×	×		×	×
424. Pueraria Thunbergiana, rt. stch	Kuzu Starch										×										

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* Continued from p. 421, April issue.

425.	Punica Granatum, rt. & st. bk	Pomegranate Bark	X	X		X	X	X	X	X	X	X	X	X		X	X	X		X	X	X
426.	Punica Granatum, ft. j	Pomegranate Juice											X					X				
427.	Punica Granatum, ft. rd	Pomegranate Rind											X	X								
428.	Quassia amara, ht.wd	Surinam Quassia	X	X					X		X	X	X	X	X	X		X	X	X	X	X
428*a*.	Quercus infectoria, galls	Galls	X	X	X	X	X	X	X	X			X	X		X	X	X		X	X	X
429.	Quercus species, in. bk	Oak Bark	X			X		X	X	X			X		X	X				X	X	
	Q. alba	White Oak																			X	
	Q. pedunculata	Summer Oak	X							X					X	X						
	Q. Robur	English Oak						X	X				X			X				X		
	Q. sessiflora	Winter Oak	X			X				X					X	X						
430.	Quercus pedunculata, s	Acorns, Acorn Coffee	X												X							
431.	Quillaja Saponaria, in. bk	Soap Bark	X		X		X		X	X			X	X						X	X	
432.	Quillaja Smegmadermis, bk							X														
433.	Rhamnus cathartica, fr. ft	Buckthorn Berries		X				X														
434.	Rhamnus frangula, bk	Buckthorn Bark	X	X			X	X	X			X		X	X	X			X	X	X	X
435.	Rhamnus Purshiana, bk	Cascara Bark	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
436.	Rheum species, rh. & rt	Rhubarb, Chinese	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	R. palmatum		X				X		X	X				X				X	X	X	X	X
	R. officinale		X	X	X		X	X	X	X	X		X	X		X				X	X	X
	R. officinale, var tanguiticum												X					X			X	X
	R. tanguiticum															X						
437.	Rheum Rhaponticum, rh. & rt	Rhubarb, Eu						X					X									
438.	Rhus glabra, ft	Sumach Berries																			X	
439.	Rhus semialata, galls	Chinese Galls										X										
440.	Ribes rubrum, fr. ft	Red Currants						X										X				
441.	Ricinus communis, s	Castor Bean						X			X		X					X				
442.	Ricinus communis, f. o	Castor Oil	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
443.	Rinacanthus communis, rt													X								
444.	Rosa centifolia, petals	Pale Rose Petals						X	X				X					X		X		
445.	Rosa gallica, petals	Red Rose Petals	X	X	X			X			X			X		X		X		X	X	X
446.	Rosa rugosa, petals											X										
447.	Rosa species, v. o. fm. fl	Oil of Rose	X	X	X		X	X	X	X		X		X	X					X	X	
	R. damascena				X		X	X							X					X	X	
	R. gallica																			X		
448.	Rosmarinus officinalis, lv	Rosemary	X	X		X		X		X	X		X			X	X	X		X		
449.	Rosmarinus officinalis, v. o. fl. tp	Oil of Rosemary	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X
450.	Rubus fruticosus, ft	Eu. Blackberry									X		X									
451.	Rubus Idæus, ft	Red Raspberry						X						X				X				
452.	Rubus villosus, rt. bk	Blackberry Bark																			X	
453.	Ruscus aculeatus, rh							X										X				

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393. French—Chavica officinarum.
410. Swiss—Potentilla silvestris.
411. Belgian, Danish, French, Italian, Russian and Spanish—Amygdalus communis, var. amara.
413. Belgian, Danish, French, Italian, Netherlands, Russian and Spanish—Amygdalus communis, var. dulcis.
428*a*. Mexican, Russian and Spanish—Q. lusitanica, var. infectoria.
430. Also from Quercus sessiflora.
452. U. S. P. VIII—also from R. cuneifolius and R. nigrobaccus.

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454. Ruta graveolens, lv. or hb	Rue						×					×					×		×		
455. Ruta graveolens, v. o. hb	Oil of Rue		×																		
456. Saccharomyces Kefir, fungus	Kefir														×						
457. Salvia officinalis, lv	Sage	×			×	×	×	×	×	×	×		×	×	×	×	×	×	×	×	
458. Sambucus nigra, fl	Elder Flowers	×	×		×	×	×	×	×	×	×		×	×	×	×	×	×	×		
459. Sambucus nigra, ft	Elder Berries									×			×								
460. Sambucus nigra, ft. j	Elder Berry Juice	×			×				×				×				×		×		
461. Sanguinaria Canadensis, rh	Bloodroot																			×	×
462. Santalum album, ht. wd	Sandalwood						×										×				
463. Santalum album, v. o	Sandalwood Oil	×	×	×	×	×	×	×		×	×		×	×	×	×	×	×	×	×	×
464. Saponaria officinalis, rt	Soapwort						×					×									
465. Sassafras officinale, pith	Sassafras Pith																			×	
466. Sassafras officinale, rt	Sassafras Root										×										
467. Sassafras officinale, rt. bk	Sassafras Bark											×							×	×	×
468. Sassafras officinale, rt. wd	Sassafras Wood	×						×					×				×				
469. Sassafras officinale, v. o	Oil of Sassafras											×					×			×	×
470. Satureja hortensis, hb							×														
471. Schleichera trijuga, f. o. s	Koesambi Oil												×								
472. Scolopendrium officinale, hb													×								
473. Scopola Carniolica, rh	Scopola										×									×	
474. Scorozonera Hispanica, rt																	×				
475. Scutellaria lateriflora, fl. hb	Scullcap																			×	
476. Serenoa serrulata, ft	Sabal																			×	×
477. Sesamum Indicum, f. o. s	Sesame Oil	×		×	×			×	×		×	×	×		×	×			×		×
478. Simaruba amara, rt. bk	Simaruba Bark							×				×	×						×		
479. Sempervivum tectorum, lv																	×				
480. Shorea Stenoptera, f. o. s	Shorea Oil												×								
481. Sinapis alba, s	White Mustard		×				×					×							×	×	×
482. Sinapis cernua, s	Jap. Mustard										×										
483. Smilax species, rt	Sarsaparilla	×	×		×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
S. medica	Mexican S.				×		×			×		×			×		×			×	×
S. officinalis	Honduras S.									×					×		×			×	×
S. ornata	Jamaica S.																			×	×
S. papyracea	Para S.																			×	×
S. syphilitica										×							×				
484. Smilax China, rh																	×				
485. Solanum Dulcamara, st	Bittersweet	×					×					×					×				
486. Solanum nigrum, lv							×					×					×				
487. Solanum tuberosum, stch. of tu	Potato Starch		×				×				×		×								
488. Spergularia rubra, hb																	×				

489.	Spigelia Marilandica, rh. & rt.	Pinkroot																			×	×
490.	Spirea ulmaria, fl.			×																×		
491.	Stillingia sylvatica, rt.	Queen's Root																			×	×
492.	Strophanthus species, s.	Strophanthus	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	S. hispidus			×		×		×			×		×					×				×
	S. Kombe				×		×		×	×				×	×	×	×	×		×	×	×
493.	Strychnos Ignatia, s.	Ignatia Beans						×					×					×				
494.	Strychnos Nuc Vomica, s.	Nux-Vomica	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
495.	Styrax species, bals. res.	Benzoin	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
	S. Benzoinum	Sumatra Benzoin		×	×	×		×			×		×	×		×	×	×			×	×
	S. species of Siam	Siam Benzoin	×				×		×	×	×	×	×		×			×	×	×	×	×
496.	Swertia Chirata, pl.	Chiretta			×																×	
497.	Symplocos odoratissima, lv.													×								
498.	Tamarindus Indica, ft. pp.	Tamarinds	×	×	×	×		×	×	×	×	×	×	×	×	×		×		×	×	
499.	Tanacetum Balsamita, lv.	Costmary																×				
500.	Tanacetum vulgare, fl. tp.	Tansy		×																		
501.	Taraktogenos Kurzii, f. o.				×																	
502.	Taraxacum officinale, pl.	Dandelion							×			×		×		×						
503.	Taraxacum officinale, rt.	Dandelion Root	×		×	×				×	×		×			×			×	×	×	×
504.	Taraxacum officinale, lv.	Dandelion Leaves	×			×		×					×					×				
505.	Terminalia Chebula, immat. ft.	Chebulic Myrobalans			×																	
506.	Teucrium Chamædrys, fl. hb.							×														
507.	Teucrium Scordium, fl. hb.	Water Germander						×					×					×				
508.	Thapsia garganica, rt.	Thapsia											×					×				
509.	Thapsia garganica, res. rt.	Thapsia Resin						×					×					×				
510.	Thea sinensis, lv.	Tea	×			×		×					×				×	×				
511.	Theobroma Cacao, s.	Cacao Beans											×					×				
512.	Theobroma Cacao, s. paste	Bitter Chocolate					×							×						×		
513.	Theobroma Cacao, f. o.	Cacao Butter	×	×	×	×	×	×	×	×	×	×		×	×	×	×	×	×	×	×	×
514.	Thymus Serpyllum, fl. hb.	Wild Thyme	×					×	×							×				×		
515.	Thymus Serpyllum, v. o.	Oil of Thyme		×																		
516.	Thymus vulgaris, fl. hb.	Garden Thyme		×				×	×		×				×	×		×		×		
517.	Thymus vulgaris, v. o.	Oil of Thyme					×	×	×			×			×	×	×	×		×	×	×
518.	Tilia species, fl. & bracts	Linden Flowers	×	×		×		×	×	×	×	×		×			×	×		×		
	T. cordata								×					×								
	T. platyphylla		×	×		×		×	×	×	×	×		×			×	×		×		
	T. ulmifolia					×				×	×	×										
519.	Toluifera Pereiræ, bals.	Peru Balsam	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
520.	Toluifera Balsamum, bals.	Tolu Balsam	×	×	×	×	×	×	×	×	×	×	×	×	×	×		×	×	×	×	×
521.	Trigonella fœnum-græcum, s.	Fenugreek	×	×					×				×							×		

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457. Spanish—also from S. lavendulæfolia.
462. Spanish—also from S. Freycinetianum.
465. Austrian, Mexican and Swiss—S. officinalis; U. S. P. VIII and IX—S. variifolium.
473. Japanese—from S. Japonica.
477. Austrian and Russian—S. orientalis.
478. Swiss—S. officinalis.
510. French and Spanish—T. Chinensis.
518. Russian—T. parviflora (ulmifolia) and T. grandiflora (platyphylla).
519. Belgian, British, German, Japanese, Mexican, Netherlands, Norwegian, Servian, Spanish and Swedish—Myroxylon Pereiræ.
520. British, Japanese, Mexican, Netherlands, Norwegian, Spanish and Swedish—Myroxylon toluiferum; German—Myroxylon balsamum.

Latin plant names	English names	Austrian	Belgian	British	Croatian	Danish	French	German	Hungarian	Italian	Japanese	Mexican	Netherlands	Norwegian	Russian	Servian	Spanish	Swedish	Swiss	U. S. P. VIII	U. S. P. IX
522. Triticum vulgare, flour fm. s.	Wheat Flour						×														
523. Triticum vulgare, stch. fm. s.	Wheat Starch	×	×	×		×	×			×		×	×	×	×	×	×	×			
524. Tussilago Farfara, fl.	Coltsfoot Flowers						×														
525. Tussilago Farfara, lv.	Coltsfoot Leaves	×				×		×			×			×	×		×				
526. Ulmus fulva, in. bk.	Slippery Elm Bark																			×	×
527. Umbilicus pendulinus, lv.																	×				
528. Uragoga Ipecacuanha, rt.	Ipecac, Rio	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
529. Urginea maritima, bulb scales	Squill	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
530. Urginea Indica, bulb scales	Indian Squill			×																	
531. Vaccinium myrtillus, ft.	Blueberries	×											×	×				×	×		
532. Valeriana officinalis, rh. & rt.	Valerian	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
533. Valeriana officinalis, v. o.	Oil of Valerian	×																			
534. Valeriana Wallichii, rh. & rt.	Indian Valerian			×																	
535. Vanilla planifolia, ft.	Vanilla	×	×				×				×	×							×	×	
536. Veratrum album, rh. &. rt.	White Hellebore		×					×	×			×						×	×	×	
537. Verbascum species, fl., without calyx	Mullein Flowers	×	×		×	×	×	×			×				×				×		
V. phlomoides		×			×	×		×			×				×				×		
V. thapsiforme					×	×	×	×			×				×				×		
V. Thapsus			×			×															
538. Veronica officinalis, hb.	Speedwell					×	×														
539. Veronica Virginica, rh. & rt.	Leptandra																			×	
540. Viburnum prunifolium, rt. bk.	Black Haw Bark	×		×			×					×	×			×	×			×	×
541. Viburnum Opulus, bk.	Cramp Bark																			×	
542. Vinca minor, lv.	Periwinkle						×														
543. Viola odorata, fl.	Violet Flowers						×			×		×					×				
544. Viola tricolor, fl. hb.	Pansy	×						×											×		
545. Xanthoxylon Americanum, bk.	N. Prickly Ash																			×	×
546. Xanthoxylon Clava-Herculis, bk.	S. Prickly Ash																			×	×
547. Zea mays, styles & stigmas	Corn Silk						×					×					×			×	
548. Zea mays, stch. of s.	Corn Starch		×	×																×	×
549. Zingiber officinale, rh.	Ginger	×	×	×	×	×	×	×	×	×	×	×	×	×	×		×	×	×	×	×
550. Zizyphus vulgaris, ft.	Jujube Berries																×				

523. French and German—T. sativum.

528. Italian and U.S.P. VIII and IX—Cephælis Ipecacuanha; U. S. P. VIII and IX—also from Cephælis acuminata (Carthagena Ipecac); British—Psychotria Ipecacuanha.

529. Belgian, French, Mexican, Netherlands, Russian and Spanish—Urginea Scilla.

536. U. S. P. VIII—also from V. viride (Am. Hellebore) and U. S. P. IX from V. viride only.

540. U. S. P. VIII and IX—also from V. Lentago.

546. U. S. P. VIII—Fagara Clava—Herculis.

549. Belgian—Amomum Zingiberis.

ABBREVIATIONS.

olr.,	oleoresin.
pfd.,	purified.
p.,	pure.
v.o.,	volatile oil.
s.,	seed.
lv.,	leaves.
bk.,	bark.
ext.,	extract.
exud.,	exudation.
g.,	gum, gummy.
fl.,	flower, flowering, florets.
rt.,	root.
rh.,	rhizome.
hb.,	herb.
ft.,	fruit.
res.,	resin.
fr.,	fresh.
wd.,	wood.
i.j.,	inspissated juice.
th.,	thallus.
tp.,	tops.
hd.,	head.
f.o.,	fixed oil.
st.,	stem.
fm.,	from.
emp.,	empyreumatic.
ht.,	heart.
lig.,	ligulate.
lf.,	leaflets.
in.,	inner.
pd.,	peeled.
ri.,	rind.
unr.,	unripe.
j.,	juice.
sc.,	sclerotium.
k.,	kernel.
co.,	corm.
sg.,	stigma.
pl.,	plant.
ster.,	sterile.
stch.,	starch.
bd.,	buds.
i.m.j.,	inspissated milky juice.
tu.,	tuber.
mu.,	mucilage.
h.,	hairs.
cl.,	cleansed.
bals.,	balsam.
spo.,	spores.

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CORRECTIONS.

The following items should be deleted from the U.S.P. IX column:

41. Apocynum Cannabium, Canadian Hemp
130. Citrus Limonum, Lemon Juice
209. Euonymus Atropurpureus, Wahoo
241. Gossypium Herbaceum, Cotton Root Bark

In the list of pharmacopœias, the following items should be corrected as follows:

Farmacopea ufficiale del Regno d'Italia, 3d ed., 1909
Russian Pharmacopœia, 6th ed., 1910
Farmacopea Argentina, 1898
Farmacopea Venezolana, 1898

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in The Journal, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

Otto Raubenheimer, Brooklyn, N. Y.

Contributed by the Chairman:

No. 162.

SPIRITUS OPHTHALMICUS MITTENDORFII.

Mittendorf's Eye Spirit.

Spirit of Camphor,
Spirit of Lavender,
Spirit of Rosemary,
Brandy, of each, equal volumes.

Set aside for a few days before dispensing. This preparation is extensively prescribed by a New York eye specialist.

No. 163.

COLLYRIUM ADSTRINGENS LUTEUM.

Yellow Astringent Eye Wash.
Ph. Aust. VIII.

Ammonium Chloride	2 Gm.
Zinc Sulphate	5 Gm.
Water	890 Gm.
Camphor	2 Gm.
Alcohol, 68 percent	100 Gm.
Crocus	1 Gm.

Dissolve the salts in the water and add the solution of camphor in alcohol. Last, add the saffron, macerate for 24 hours, and then filter. Used in conjunctivitis.

No. 164.

TINCTURA FŒNICULI COMPOSITA.

Compound Tincture of Fennel.
(Romershausen's Augen Essenz.)
E. B. III.

Fennel, bruised	100 Gm.
Alcohol, 68 percent	500 Gm.
Oil of Fennel	1 Gm.

Macerate fennel in alcohol for 3 days at a temperature of 15 to 20°, filter, and add the oil.

Used as an eye wash diluted with water. (See No. 165.)

No. 165.

AQUA OPHTHALMICA ROMERSHAUSENII.

Romershausen's Eye Water.
E. B. III.

Comp. Tinct. of Fennel	1 part
Water	5 parts

No. 166.

AQUA OPHTHALMICA CONRADII.

Conrad's Eye Water.
F. M. G.

Zinc Sulphate	0.5 Gm.
Crocated Tinct. Opium, N. F. IV	1.5 Gm.
Distilled Water, a sufficient quantity,	
To make	150 Gm.

No. 167.

HARRINGTON'S SOLUTION.

Mercuric Chloride	0.8 Gm.
Hydrochloric Acid	60.0 mils
Water	300.0 mils
Alcohol	640.0 mils

This solution is recommended for hand disinfection, and it is also used for preparing the skin before incisions. On account of its sublimate content, it should be preceded by ether and followed by a little plain water.

No. 168.

RUBINI'S SOLUTION.

Rubini's Essence.

This is a saturated alcoholic solution of camphor. Three or four drops are taken on sugar against colds.

No. 169.

INJECTIO IODI.

Morton's Fluid.

Iodine	0.6 Gm.
Potassium Iodide	2.0 Gm.
Glycerin, a sufficient quantity,	
To make	30 mils

Used as an injection in tumors, from 2 to 4 mils according to size of tumor.

Contributed by Rudolf Lundgren:

No. 170.

LINIMENTUM PHENOLIS COMPOSITUM.

Compound Phenol Liniment.

Tinctura Antiodontalgica, Ph. Suec. IX.

(Toothache Drops.)

Phenol	2 parts
Menthol	2 parts
Eugenol	1 part

Liquefy the phenol, add the menthol and eugenol, and dissolve.

This produces an excellent toothache remedy, far superior to any other similar preparation.

No. 171.

WHITE SHOE DRESSING.

Liquefied Phenol	1 mil
Tragacanth, in fine powder	3 Gm.
Whiting	16 Gm.
Zinc Oxide	64 Gm.
Talc	96 Gm.
Water	100 mils

Triturate the powders until thoroughly mixed, and gradually add, with constant trituration, the water. Strain through wetted muslin with expression, and lastly, add the phenol.

A most excellent dressing for canvas shoes.

No. 172.

PULVIS DENTIFRICIUS Ph. SUEC. IX.

Dental Powder.

(Tooth Powder.)

Magnesium Carbonate	8 Gm.
Sodium Borate	8 Gm.
Oil of Peppermint	1 mil
Calcium Carbonate, Precipitated	83 Gm.

Triturate well and sift.

"As good as the best,
Better than most."

No. 173.

SOLUTION RED MERCURIC IODIDE.

Red Mercuric Iodide	1 Gm.
Sodium Iodide	1 Gm.
Distilled Water, a sufficient quantity,	
To make	10 mils

Intended chiefly for intramuscular injections.

(Cleveland City Hospital.)
(Lakeside Hospital, Cleveland.)

No. 174.

SPECIAL BURN OINTMENT.

Phenol	1 Gm.
Thymol	1 Gm.
Camphor	1 Gm.
Menthol	1 Gm.
Ichthyol	2 Gm.
Balsam of Peru	2 Gm.
Starch	20 Gm.
Zinc Oxide	20 Gm.
White Petrolatum	152 Gm.
To make	200 Gm.

Liquefy the first four ingredients by trituration in a mortar, and then add the next two and mix thoroughly. Now incorporate the zinc oxide together with the petrolatum. Lastly, add the starch in fine powder.

This ointment is sometimes used one-half strength.

(Clairton, Pa., Steel Mills.)
(City Hospital, McKeesport, Pa.)

Contributed by M. I. Wilbert:

No. 175.

MAGNESII PEROXIDUM CUM CRETA.

Magnesium Peroxide with Chalk.

(Oxygenated Tooth Powder.)

B. P. Cx.

Magnesium Peroxide	10.00 Gm.
Hard Soap, in powder	2.50 Gm.
Menthol	0.10 Gm.
Oil of Rose	0.26 mil
Oil of Wintergreen	0.52 mil
Precipitated Chalk, heavy, a sufficient quantity,	
To make	100 Gm.

Triturate the menthol with the oils, and mix intimately with 10 Gm. of the heavy precipitated chalk; then add the magnesium peroxide, soap, and sufficient precipitated chalk to make up to the required weight; pass through a fine sieve.

Contributed by C. J. Spalding:

No. 176.

HONEY AND ALMOND CREAM.

Powdered Borax	15 Gm.
Powdered Castile Soap	135 Gm.
White Wax	30 Gm.
Spermaceti	165 Gm.
Sulphuric Acid	7 mils
Expressed Oil of Almond	120 mils
Glycerin	120 mils
Ext. Witch Hazel	60 mils
Alcohol	60 mils
Quince Seed, bruised	20 Gm.
Water, a sufficient quantity,	
To make	4000 mils

No. 1.—Add quince seed to 2000 mils of cold water. Let stand 24 hours, shaking frequently. Strain through muslin.

No. 2.—Melt soap in 1500 mils of boiling water and add borax, sulphuric acid and witch hazel.

No. 3.—Melt wax, spermaceti, glycerin, and oil of almond. Mix thoroughly and then add No. 1 quickly. Thoroughly agitate, and add No. 2 and boiling water to make 4000 mils. Cool, and when luke warm add the perfume oil. Let stand 4 days, shaking frequently, and again strain. Perfect success depends upon plenty of agitation.

No. 177.

PERFUME OIL.

Oil Bitter Almond	12 mils
Oil Bergamot	4 mils
Oil Lavender	10 drops
Oil Rose Geranium	4 mils
Oil Petit Grain	15 drops
Ext. Violet	4 mils
Ext. Carnation Pink	4 mils
Alcohol	60 mils

No. 178.

SOLDERING SOLUTION.

Zinc Chloride	480 Gm.
Glycerin	280 Gm.
Methyl Alcohol	480 Gm.
Water, a sufficient quantity,	
To make	10,000 mils

No. 179.

TINCT. QUININÆ COMP.

(Loomis.)

Quinine Sulphate	60 Gm.
Salicin	60 Gm.
Cinchona	1000 Gm.
Bitter Orange Peel	1000 Gm.
Alcohol	9000 mils
Water	2000 mils

Percolate the ground drugs with the menstruum and therein dissolve the chemicals.

No. 180.

ENGLISH TONIC.

(Freleigh.)

Tinct. Phosphorus N. F.	20 mils
" Calumba	50 mils
" Gentian	50 mils
" Matricaria	90 mils
" Nux Vomica	90 mils
" Ignatia	90 mils
" Aromatic	180 mils
" Cinchona	360 mils

No. 181.

CONDITION POWDER.

Charcoal, powdered	60 Gm.
Fenugreek Seed, powdered	60 Gm.
Exsiccated Ferrous Sulphate	150 Gm.
Gentian, powdered	210 Gm.

Dose: 15 Gm. on feed.

Contributed by the Chairman:

Historical notes should also prove of interest and might well be added to the formulas. The members of the Committee, as well as the readers of the JOURNAL, are requested to contribute such to the Chairman. A record of the origin and history of these formulas should certainly be preserved.

No. 115.

TINCTURA FERRI ACETATIS ÆTHEREA.

Klaproth's Tincture of Iron.

This tincture was originated in 1801 by the Berlin apothecary and founder of "mineral chemistry," Martin Heinrich Klaproth (1743–1817), and it became official in the Pharmacopœia Borussica and held its place up to and including the D.A.B. III. Hermann Hager, in 1863, improved the preparation of the solution and the tincture. Of late years this tincture is also becoming popular in the United States, being frequently prescribed.

HOME-MADE FIRE EXTINGUISHERS.

In many situations, especially in rural localities, an abundance of hand grenades for extinguishing fire is a very necessary precaution. They can easily be manufactured at a trifling cost.

The following three formulas are inexpensive and produce excellent results when placed in mineral water bottles, which are easily broken when required.

No. 182.

HAGNARD'S GRENADES.

Calcium Chloride	157 Gm.
Magnesium Chloride	56 Gm.
Water, a sufficient quantity,	
To make	1000 Gm.

No. 183.

HOWEN'S GRENADES.

Sea Salt	200 Gm.
Sal Ammoniac	90 Gm.
Water, a sufficient quantity,	
To make	1000 Gm.

No. 184.

"DEATH TO FIRE" GRENADES.

(Schwenberg.)

Sea Salt	65 Gm.
Solvay Salt	17 Gm.
Water, a sufficient quantity,	
To make	1000 Gm.

Solvay salt is anhydrous sal soda, or washing soda, manufactured by the Solvay process.

(Sc. Am., 1915, No. 22, 493.)

No. 185.

FIRE-PROOFING SOLUTION FOR FABRICS.

Boric Acid	50 Gm.
Borax	60 Gm.
Water	1000 mils

This formula was presented by the Director of the Municipal Laboratory in Paris to the Commission on Theatres.

The solution may be painted on the fabrics, or the material may be soaked in the solution and then dried either by exposure to the air or by means of hot irons. The advantages of this solution are cheapness, easy application and non-alteration of the material.

The fire-proofing action of the mixture is *not* due to the generation of an inert gas, but to the low fusing point of the chemicals, which form a layer or "glaze," which protects the fabric.

(La Nature, through Sc. A. Suppl. No. 2090.)

No. 186.

FIRE-PROOFING SOLUTION.

(Dr. Klut.)

Ammonium Phosphate	100 Gm.
Water	900 mils

According to Dr. Klut this solution does not attack the fabrics and is therefore superior to other solutions.

(Ph. Zhlle, 1904, No. 11, 115.)

No. 187.

TINCTURA QUININÆ AMMONIATA.

Ammoniated Tincture of Quinine.

B.P. 1914.

Quinine Sulphate	20 Gm.
Ammonia Water	100 mils
Alcohol, 60 percent	900 mils

Dissolve quinine sulphate in the mixed solutions, set aside for three days, and filter.

Dose: 2 to 4 mils.

No. 188.

UNGUENTUM GALLÆ CUM OPIO.

Gall and Opium Ointment.

"Pile Ointment."

B.P. 1914.

Powdered Opium	7.5 Gm.
Nutgall Ointment	92.5 Gm.

Triturate the opium with a portion of the nutgall ointment until smooth, then gradually add the remainder, mixing thoroughly by trituration.

No. 189.

UNGUENTUM PARAFFINI.

Paraffin Ointment.

B.P. 1914.

White Wax	3 Gm.
Paraffin	27 Gm.
Petrolatum	70 Gm.

Melt together and stir until cold. For white ointments use white petrolatum, and for colored ointments use the yellow variety.

REPORTS OF COMMITTEES

REPORT OF COMMITTEE ON QUALITY OF MEDICINAL PRODUCTS, AUGUST, 1915.*

During the past year there has been no improvement in the record of failure to keep ordinary solutions up to their standard strength. One Board reports over 18 percent of all samples as varying from standard. Forty-one samples of spirit of peppermint were of official strength, while twenty ranged from 24 percent to 80 percent of official strength. Nine samples of spirit of anise were of full official strength, while ten ranged from 0 percent to 89 percent. Nineteen samples of spirit camphor were full strength, while nine ranged from 65 percent to 85 percent. Seventeen samples of spirit wintergreen were all right, but one was 22½ percent. Twenty-seven samples of tincture iodine were of full strength, while twenty-two ranged from 33 percent to 84.5 percent. None of these products offer any difficulty in making or keeping, and it is hard to understand why they should be deficient. Forty-one samples of spirit nitrous ether were satisfactory, while sixty-four were not, ranging from 0.9 percent to 84 percent. This is not to be wondered at, as it is a very unstable product. Messrs. Lythgoe and Nuremberg, chemists for the Massachusetts State Board of Health, contribute very interesting data in relation to it. "A lot carefully made by the U.S.P. process was divided into six portions. A full bottle was kept in an ice-chest, a full white bottle in the laboratory, and a full amber bottle in the laboratory. An amber bottle, half full, was kept in the cupboard, a full white bottle and a full amber bottle in the sunlight. Another sample was made from a tube of concentrated nitrous ether and divided into two portions, one filling a bottle, one half filling a bottle and both kept in a cool place side by side. These samples were examined seven or eight times during nearly four months. The full bottle in the ice-chest showed absolutely no deterioration during this time and was kept in this condition for two years. The full bottle kept in the laboratory showed little deterioration during eighty days. Those kept half full and those kept in the sunlight showed marked deterioration, particularly the white bottle kept in the sunlight, which deteriorated completely in 83 days."

Their contention is that if a druggist complies with the requirement of the pharmacopœia and keeps his spirit nitrous ether in small, full, amber bottles in a cool place, he will have no trouble in dispensing full strength, if prepared within three or four months. Instead, not a few use from a large bottle that is carelessly stored and before it is used are dispensing a very inferior product.

It is of interest to note the reading of the alcoholic solutions in the polariscope and refractometer. Camphor, 5 Gm. in alcohol to make 100 Cc., has an optical rotation of + 2.2°. Camphor, 10 Gm. in alcohol to make 100 Cc., has an optical rotation of + 4.35°. Camphor, 5 Gm. in alcohol to make 100 Cc., has a refractometer reading of 1.3678 at 24° C. Camphor, 10 Gm. in alcohol to make 100 Cc., has a reading of 1.3730 at 24° C., alcohol has a reading of 1.3620 at 24° C. Increase for first 5 Gm., 0.0058, second 5 Gm., 0.0052 at 24° C.

There are still numerous calls for tablets and pills containing volatile or easily oxidizable substances which cannot be retained in the mass, so that impairment is inevitable soon after being made.

An effort is being made in some directions to obtain a guarantee of the keeping qualities of all products, but this is not practicable. A product carefully stored by one dealer would be good for many months, while carelessly stored by another will very quickly spoil. Beef, iron and wine in one store, kept away from direct sunlight, may keep a year; placed in the window, exposed to sunlight, the same product may spoil inside eight to ten days. Again, there is marked difference of opinion as to the keeping qualities of various products. Some imagine that digitalis leaves or digitalis fluid extract very soon deteriorate. Manufacturers know this is not so. Examination of these products properly kept over two years shows no change. In the November, 1914, issue of the Jour. of the Am. Ph. Assoc., p. 1559, the statement is credited to Prof. Hatcher that leaves twenty years old have assayed better than leaves a year old. Tinctures ten years old tested, as well as those freshly made and of several fluid extracts, one, fifteen years old, had the highest test. Then it is important to know whether the value of a product is determined by accurate chemical test or inaccurate physiological experiment. This feature is brought out very clearly in the excellent paper by Prof. Wm. C. Alpers, p. 715 of the June, 1915, Journal. On p. 720 he cites the instance of standardized tinctures, being put upon the market with certificate of strength, being returned as unknowns to their source of origin, to have some samples pronounced as worthless and some as over-strong. Different lots of any drug will vary as locality of growth, soil, degree of moisture, sunshine, etc., varies. In addition to this the ignorant admixture of crude drugs that have similar characteristics brings about variation as suggested by Prof. J. U. Lloyd, p. 87 D. C. Tests of identity by chemical reaction, development of color, etc., may be of no value where the article tested is a mixture. This is well illustrated by the worthless color tests applied to methyl salicylate, oil of birch and true oil of wintergreen. It is also brought out in the tests for cod-liver oil. Mixtures of this oil and other fish-liver oils and with seal oil can be made to pass the color tests. Careful comparison with a known pure sample may show some differences in color that would not be distinguished without such standard comparison. The refractive index is of value in differentiating different pure products, but may be misleading with mixtures.

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* Scientific Section, San Francisco meeting.

The following results explain our statement:

	Dogfish Oil (Shark fish Oil)	Seal Oil Refined	Norwegian C. L. Oil	Newfoundland C. L. Oil
Color	Yellowish brown or amber	Very pale yellow	Pale yellow	Decided yellow.
Odor	Offensive.	Not disagreeable.	Not disagreeable.	Not disagreeable.
Saponification Number	161.6	192.4	185.5	
Sp. gr. at 25° C.	0.915	0.920	0.922	0.922
Refractive Index at 23° C.	1.4748	1.4751	1.4779	1.4788
Reduction of temperature	Slight turbidity −6° C. Semi-solid −8.5° C. Solid −13° C.	−6° C. −15° C.	Thickened −6° C. Opaque −13° C.	Thickened −5° C. Semi-solid −13° C.
Sulphuric acid on rod	Brilliant violet purple changing to reddish brown.	Slight blue changing to dirty brown or black.	Violet to brown red or amber.	Deep violet to dirty brown black.
Sulphuric acid and chloroform	Light blue to violet and violet red.	Reddish brown.	Violet to reddish brown.	Blue to reddish brown.
Fuming Nitric Acid	Deep rose violet to decided brown.	No color—after a time faint violet.	Rose red to lemon yellow.	Violet to permanent brown.

The character of these color reactions can be varied by amount of acid used in relation to oils and by temperature. Then the quality of the fuming nitric acid modifies this test, which is apparently the best for identifying a pure Norwegian oil. A mixture of seal oil 1 and Norwegian oil 3 volumes tests little different from the straight Norwegian oil, while seal oil 2 and Norwegian oil 2 volumes reacts with the sulphuric acid tests all right, while giving a darker end color with fuming nitric acid. Here again, do we know in any case what we are testing? The Newfoundland oil was said to be from the true cod only (Gadus morrhua). The books tell us the Norwegian oil is from the ling, coalfish, dorse, pollock and other varieties of Gadus. The Fish Commissioner of Norway testified not long since before an American Court that Norwegian oil is from Gadus morrhua only. Who knows the truth about the matter?

The year has been unique in the experience of any person now living. The interruption to the collection of approximately half of the staple foreign drugs, caused by the great war, and even more to their transportation, has carried us back toward a period a century earlier, when ocean transportation was scanty. These conditions have worked in a variety of ways to disarrange the drug market. Many of the collectors in the regular regions are new and inexperienced and are contributing drugs which are not clean, not judiciously collected and not properly preserved. These conditions are still worse when the drugs come from regions which have not heretofore contributed them. Accidental admixture or substitution has thus occurred. The scarcity has resulted in high prices and this has encouraged some intentional adulteration.

These conditions have lent special value and importance to the federal supervision of drug imports. Those who believe that there is little intentional sophistication of crude drugs are not in a position to realize the force of this fact. It is true that the sophistication of drugs in foreign countries is a regularly organized and extensive business, and is always ready to take advantage of such situations as that now existing. But for the federal authorities' suppression of the first attempts in this direction, the United States would have received a flood of sub-standard drugs during the past year. As it is, we have suffered from a very great scarcity, almost a famine in some articles, but the quality has been well maintained.

Some drugs, formerly peculiarly subject to adulteration, have attained to almost ideal conditions as to grade. Among such may be mentioned saffron, papaw juice, horehound, insect flowers, pareira brava, cardamom seeds, matico and senna siftings. Up to a year or two since, practically all dried papaw juice imported was heavily adulterated with starch or starchy substances and with the dried pulp of the plant. When this was rejected there was a great outcry. It was declared that no other grade was obtainable and that the market would be unable to get supplies. Rejection was persistent and unyielding, with the result that not only are shipments almost always pure, but new and improved methods of drying have been introduced and the quality is very superior to what it was. In the meantime, a new method of adulterating has been tried. The usual method was to break up dried rice bread and mix the fragments through those of the papaw juice. The new method is to dip the bread fragments in the fresh milk-juice, so as to thoroughly coat it. It is always necessary to break the lumps up and not to decide by the superficial appearance.

Attempts to substitute scopola for belladonna root, or to mix it, have been renewed, but were quickly suppressed. In one case, the Japanese scopola was employed.

Similarly there has been a slight attempt at adulteration of belladonna leaves with phytolacca and with scopola leaves. The most serious thing was the shipment from Italy of a lot of herbage of Physalis Alkekengi for belladonna leaves, detected by Mr. Mel, of the New York Laboratory. One shipment of belladonna leaves was quite hairy; so much so, that their identity was questioned.

Of late, persistent attempts have been made to import spurious ipecac, the stimulus coming, doubtless, from its exceptionally high price. There has been more shipping of spurious ipecac in the last six months than in the preceding ten years. Needless to say, none of it has reached the channels of trade. Three different tropical roots have been used for this purpose. A curious effect of sea-water on ipecac has been observed. A shipment of this drug went down with a sunken steamer in New York harbor. When the steamer was raised, the ipecac was dried and presented a good appearance, but on assay it was found to contain scarcely any alkaloid.

The addition of stems to drugs which should contain little, if any, has been quite common this year and has specially affected buchu, cubeb, hyssop, thyme, and lavender flowers. These and other drugs have also been unusually dirty and sandy.

What is there in cubeb that leads analysts astray? One state official condemned a popular brand of bronchial lozenges as containing opium and stated that their sale was illegal. As no opium or derivative of opium had ever been on the premises of the manufacturer, the report was a great surprise. He was unable to get a satisfactory statement as to method of examination or unable to get a sample of the lot analyzed, but the official maintained that his work was corroborated by a published formula. If he had looked further he would have found three other published formulas all different. The publication of four different formulas based on examination of a product and none of them agreeing with the original is not very complimentary to the accuracy of organic analysis. Another official claimed to have found conium in the lozenges, but none was ever put in by the manufacturer. Another state official condemned a cubeb bronchial lozenge as containing opium, but it was not there and from the character of its manufacture could not have been there. If any one can throw any light upon the cause of such wild and injurious statements it would be a public benefit.

Table.

Acid Trichloracetic.—None of the lots examined gave a faint reddish color with $FeCl_3$ as required by the U.S.P., but even reagent acids refuse to conform to this test.
C. E. Vanderkleed.

Aconite Leaf.—One sample. 0.355 alkaloid. Standard, 0.2 ether soluble alkaloids.
C. E. Vanderkleed.

Aconite Root.—Five samples. Highest, 0.626. Lowest, 0.360. Average, 0.497. Standard, 0.5 ether soluble alkaloids. C. E. Vanderkleed.

Aloes.—One sample submitted contained no aloin. W. L. Scoville.

Althæa.—Cut althæa, thinly coated with milk of lime, as Jamaica ginger and German calamus are treated, is of frequent appearance. It is now recognized that other drugs are adulterated when so treated and it would seem that the same view should be taken of this.
H. H. Rusby.

Alum Dried and Powdered.—Great improvement in moisture content has been noted, none of the samples containing more than 6 percent, which is very close to our arbitrary standard of 5 percent moisture. C. E. Vanderkleed.

Two percent water, 1 percent insoluble, 2 percent water, 1.3 percent insoluble, 2.5 percent water, 1 percent insoluble. E. L. Patch.

Areca Nut.—A shipment of areca nuts, of very good appearance externally, was found when broken to consist of more than 50 percent of wormy, mouldy and decayed material entirely unfit for use. H. H. Rusby.

Asafœtida.—Alcohol soluble, 63 percent, ash, 15 percent, ash standard, 10 percent; alcohol soluble, 51 percent, ash, 14 percent; alcohol soluble, 65 percent, ash, 11 percent; alcohol soluble, 58 percent, ash, 14 percent; alcohol soluble, 58 percent, ash, 18 percent. E. L. Patch.

Alcohol soluble, 61.9 percent, ash, 13.1 percent; alcohol soluble, 59 percent, ash, 22.5 percent. C. E. Vanderkleed.

Six lots ranged from 36 percent soluble in alcohol to 77.3 percent, and from 40 percent ash to 2.06 percent. Five contained more than 66 percent alcohol soluble matters.
W. L. Scoville.

Balsam Peru.—Specific gravity, 1.157, cinnamein, 53 percent; specific gravity, 1.15, cinnamein, 60 percent; specific gravity, 1.150, cinnamein, 63.6 percent; specific gravity, 1.156, cinnamein, 56 percent.

In answer to criticism of a lot, a leading importer sent the following: "This balsam is of our own direct importation from San Salvador and is absolutely pure and genuine. It does not, however, strictly comply with the U.S.P. requirements in that the percentage of cinnamein is slightly less than the minimum called for, and it varies a little as to specific gravity and acid value. Although we are very large importers of this article, handling about 60 percent of the country's total importation, and testing every parcel that comes to us, we very rarely, in fact practically never, find any balsam that is strictly U.S.P. This condition has been recognized by the federal authorities and will doubtless be taken notice of by the U.S.P. Revision Committee, now at work on the next edition." E. L. Patch.

Extract of Beef.—Liable to find it low in proteids, requiring an additional quantity to be used to obtain a beef, iron and wine that will meet the standard.

	Percent	Percent	Percent	Percent	Percent
Moisture	17	20	20	20	20
Salt	16.5	18.5	11.6	18.68	4.5
Proteid	47.69	41.44	48.75	36.56	55

E. L. Patch.

Beef, Iron and Wine.—Several samples low in iron and proteids were classified as beverages and obliged to pay liquor tax. E. L. Patch.

Belladonna Leaves.—Three samples. Highest, 0.350. Lowest, 0.247. Average, 0.300. Standard, 0.300. C. E. Vanderkleed.

Three-tenths percent, 0.37 percent, 0.37 percent, 0.3 percent. E. L. Patch.

Of late much adulteration, from 20 percent to 80 percent of added leaves of poke root, scopola or ailanthus. HAROLD DEAN.

Belladonna Root.—Seven samples. Highest, 0.640. Lowest, 0.424. Average, 0.511. Standard, 0.45. C. E. VANDERKLEED.

Benzoin.—Five lots ranged between 67.8 percent and 76.5 percent in alcohol solubility and 0.96 percent and 1.62 percent ash. C. E. VANDERKLEED.

Six lots yielded from 78 percent to 87.3 percent alcohol soluble constituents.
W. L. SCOVILLE.

Blaud Pills.—Contain from 77 percent to 182 percent of claimed Iron Carbonate contents.
AMER. PHAR. ASSOC. JOUR., May, 1915.

Bloodroot.—One sample. 3.98 percent alkaloids. Standard, 2.5 percent.
C. E. VANDERKLEED.

Ten lots gave 1.77 percent to 7.01 percent alkaloids. Seven of the ten contained 5 percent or more. W. L. SCOVILLE.

Blue Mass Powder.—Two lots contained 32 percent and 31.3 percent metallic mercury, both below the standard of 33 percent. C. E. VANDERKLEED.

Buchu.—A number of shipments of spurious buchu, representing several species, have been received. On investigation it was found that the error was due to the ignorance of the collectors. H. H. RUSBY.

Burdock Root.—One lot ground had 20.8 percent ash. Usually has from 7 percent to 10.5 percent. E. L. PATCH.

Calcium Carbonate C. P. Ppt.—Usually gives slight precipitate in test for limit of iron, aluminum and phosphates. C. E. VANDERKLEED.

98.85 percent, 98.35 percent, 98.85 percent, 98.85 percent, 98.35 percent, $CaCO_3$.
E. L. PATCH.

Calcium Chloride.—One lot left 1.4 percent residue in U.S.P. test for magnesium and alkalies, while the standard is only 0.1 percent. C. E. VANDERKLEED.

Calcium Phosphate Precipitated.—Contained 1 percent chloride. Lot 2, 1.2 percent. Three lots traces only. E. L. PATCH.

One lot contained chloride in excess of U.S.P. allowance.
C. E. VANDERKLEED.

Cannabis Indica.—The genuine Cannabis indica of former days has become rather unusual, various forms of cannabis herb, often very seedy, from various countries having replaced it. H. H. RUSBY.

Cantharides.—Six samples Chinese cantharides. Highest, 1.1. Lowest, 0.570. Average, 0.869. One sample of Russian, 0.625. Standard, 0.6 percent cantharidin.
C. E. VANDERKLEED.

Cantharidin contents range from 0.55 percent to 1.15 percent.
W. L. SCOVILLE.

Capsicum.—Six samples. Highest, 20.84 percent oleoresin. Lowest, 13.85 percent. Average, 16.65 percent. Standard, 10 percent. C. E. VANDERKLEED.

Alcoholic extract from six samples, 20 percent to 24.2 percent. Ash, 5.2 percent to 10 percent. E. L. PATCH.

Cardamom.—"Green Cardamoms" have arrived in considerable quantity. These cardamoms have a thin, tough, greenish-brown surface and have not been bleached. This variety is of excellent quality. H. H. RUSBY.

Cascarilla.—Bark has become very poor, being mostly the scrapings of small limbs and twigs. It would appear that this shrub is now almost exterminated in the wild state.
H. H. RUSBY.

Cherry Juice.—Specific gravity, at 25° C., 1.055; residue, 19 percent; alcohol, 11.72 percent; vol. 10 Cc. = 0.4 Cc. normal KOH solution. Specific gravity, 1.037; residue, 14.8 percent; alcohol, 14.5 percent; vol. 10 Cc. = 0.35 Cc. normal KOH solution.

Specific gravity, 1.048; residue, 15 percent; alcohol, 13.26 percent; vol., 10 Cc. = 0.4 Cc. normal KOH solution.

Specific gravity, 1.062; alcohol, 16.2 percent; residue, 22.7 percent; 10 Cc. = 0.35 Cc. normal KOH solution.

Specific gravity, 1.055; alcohol, 11.72 percent; residue, 19 percent; 10 Cc. = 0.4 Cc. normal KOH.

Specific gravity, 1.007; alcohol, 23.04 percent; residue, 8.5 percent; 10 Cc. = 0.7 Cc. normal KOH. E. L. PATCH.

Chondrus.—Great quantities of chondrus have arrived in an unbleached state, very dark and quite sandy and dirty. It is usually imported as "French moss" or "crude moss." We find that this is mostly used for kalsomining. H. H. RUSBY.

Chromium Sulphate.—Two lots examined assayed 85.4 percent and 87.1 percent $Cr_2(SO_4)_3$, respectively. C. E. VANDERKLEED.

Cinchona, Red.—One lot, 8.35 percent. Yellow cinchona, ten lots, highest, 11 percent, lowest, 6.5 percent. Average, 8.56 percent. Standard, 5 percent total anhydrous alkaloid. C. E. VANDERKLEED.

Coca Leaves.—One lot, 1.053 percent. Standard, 0.5 percent ether soluble alkaloids. C. E. VANDERKLEED.

One lot, 0.93 percent. E. L. PATCH.

Cocculus indicus.—Two shipments of cocculus indicus or fish berries have come under the name of "Sumac," an error that we have not been able to explain. H. H. RUSBY.

Colchicum Seed.—Three lots. Highest, 0.850 percent. Lowest, 0.660 percent. Average, 0.780 percent. Standard, 0.45 percent colchicine. C. E. VANDERKLEED.

Colchicine.—Continues to contain excessive amounts of chloroform and moisture. Thirteen lots lost 2.2 percent, 4.2 percent, 8.3 percent, 9.1 percent, 9.3 percent, 10.3 percent, 10.6 percent, 12.1 percent, 12.6 percent, 12.7 percent, 12.9 percent, 22.3 percent, and 29.2 percent of their weight at 102° C., the loss in each case, with the exception of the 4.2 percent figure, being chiefly due to chloroform. This lot lost moisture only. There is probably no excuse for the excessive quantities of chloroform left in this alkaloid, as it is readily driven off on heating without appreciably affecting the color of the alkaloid. It is difficult to obtain a good qualitative reaction with U.S.P. hydrochloric acid-ferric chloride-chloroform test if the mixture is heated only to boiling, as required by the U.S.P., but if the boiling is continued one or two minutes, guarding against excessive evaporation, a good reaction is always obtained. C. E. VANDERKLEED.

Cramp Bark.—Spurious cramp bark has this year been seized in interstate commerce. Efforts to secure orders for genuine cramp bark have not met with much success. H. H. RUSBY.

Cresol.—Only two of sixteen lots examined had a specific gravity within the U.S.P. limits of 1.036–1.038, these two giving 1.037 and 1.038, respectively. One was 1.039, one 1.016 and the other twelve ranging from 1.030 to 1.033. All of the samples answered the requirements of 90 percent distilling between 195° and 205° C., except one of which 86 percent distilled. It is almost impossible to obtain a cresol soluble in 60 parts of water, but as a rule the insoluble portion is very small in amount. All other U.S.P. requirements were met by the samples. C. E. VANDERKLEED.

Dandelion Root.—Lot of powdered, 45 percent ash. Usually 9 percent. E. L. PATCH.

Digitalis Leaves.—Two samples. Highest, 0.365 percent. Lowest, 0.293 percent. Average, 0.329 percent. Standard, 0.25 percent digitoxin. C. E. VANDERKLEED.

0.27 percent, 0.30 percent, 0.28 percent, 0.26 percent. Ash, 8 to 9.5 percent. E. L. PATCH.

Ergot.—Six lots. Highest, 0.380 percent. Lowest, 0.115 percent. Average, 0.256 percent. Standard, 0.15 percent cornutine. C. E. VANDERKLEED.

Formaldehyde.—Lot, 38.2 percent. Formaldehyde contained copper. E. L. PATCH.

All examined exceeded the U.S.P. requirements of 1.075 to 1.081 in specific gravity. The average was between 1.082 and 1.087. Most gave reactions for chloride, sulphate and calcium, but were otherwise U.S.P. C. E. VANDERKLEED.

Gelsemium.—Four lots. Highest, 0.849 percent. Lowest, 0.503 percent. Average, 0.630 percent. Standard, 0.4 percent alkaloids. C. E. VANDERKLEED.

Ginger, African.—Two samples. Highest, 8.90 percent. Lowest, 7.99 percent. Average, 8.44 percent. Standard, 6 percent oleoresin. C. E. VANDERKLEED.

Ginger, Jamaica.—One sample, 3.93 percent. Standard, 4 percent oleoresin. C. E. VANDERKLEED.

Alcoholic extract, 7.7 percent, 4.4 percent, 4.4 percent, 6.3 percent, 4.5 percent, 4 percent, 4.9 percent, 6.2 percent, 5.3 percent, 5 percent, 6.5 percent, 5.3 percent, 4.4 percent, 6 percent, 4.5 percent. E. L. PATCH.

Guaiac.—Alcohol solubility ranged between 77.5 percent and 99.2 percent, only one being below the U.S.P. standard of 85 percent. Ash ranged between 0.51 percent and 5.7 percent, only one being above the U.S.P standard of 4 percent. C. E. VANDERKLEED.

Yielded from 70.3 percent to 97 percent alcohol soluble matter. Four out of fourteen lots were below 80 percent, and seven between 80 percent and 90 percent. W. L. SCOVILLE.

Black Hellebore Root.—

Ash per cent.	Extract per cent.	Ash per cent.	Extract per cent.
8.4	31.7	9	30
7	30	7	31
9.5	22	5	30.8
9	23	8	31.8
10	21.9	7.5	30.8
10	23	8	31.2
7.5	31.2	8.5	31
6	32	6.5	30

E. L. PATCH.

Hellebore, White.—One lot powdered, 1.41 percent alkaloid. Others, 1.04 percent, 0.9 percent. Ash, 11 percent to 13 percent. E. L. PATCH.

Hydrastis.—Five samples. Highest, 3.98 percent. Lowest, 3.16 percent. Average, 3.63 percent. Standard, 2.5 percent hydrastine. C. E. VANDERKLEED.

One lot only 2.7 percent ether soluble alkaloid. W. L. SCOVILLE.

3.2 percent, 4 percent, 4.2 percent alkaloid hydrastine. E. L. PATCH.

Hydrogen Peroxide.—Twenty-three lots examined were satisfactory with the exception that two gave total solids of 0.0479 and 0.340 Gm. per 20 Cc. instead of 0.030 as required by the U.S.P. C. E. VANDERKLEED.

Hyoscyamus.—Twenty lots. Highest, 0.140 percent. Lowest, 0.031 percent. Average, 0.073 percent alkaloids. Standard, 0.08 percent. C. E. VANDERKLEED.

Alkaloid, 0.084. Ash, 27 percent. Alkaloid, 0.700. Ash, 35.8 percent. E. L. PATCH.

Annual or "seedling" henbane continues to arrive. The greatest defect is the large amount of earth adhering. When clean, its assay figure is usually good. H. H. RUSBY.

Infusorial Earth.—If used for filtering purposes must be watched closely for carbonate. Even insoluble carbonates are detrimental and carbonates are frequently found. W. L. SCOVILLE.

Ipecac.—Six lots whole. Highest, 2.380 percent. Lowest, 1.846 percent. Average, 2.221 percent. Three lots powdered. Highest, 2.130 percent. Lowest, 1.666 percent. Average, 1.872 percent. Standard, 1.75 percent. C. E. VANDERKLEED.

1.71 percent, 2.28 percent, 1.85 percent, 1. 96 percent. E. L. PATCH.

One lot of Rio, 1.67 percent. W. L. SCOVILLE.

Fluid extract ipecac proved to be an aqueous solution of tartar emetic colored with caramel. N. A. R. D. JOURNAL.

Iron Sulphate Dried.—Continues to vary greatly in $2FeSO_4\ 3H_2O$ content; 15 lots ran 80 percent, 83.1 percent, 88.5 percent, 91.3 percent, 91.9 percent, 92.3 percent, 92.6 percent, 93.4 percent, 93.4 percent, 95.2 percent, 96 percent, 96 percent, 99 percent, 103 percent and 104.3 percent. C. E. VANDERKLEED.

Jaborandi.—One lot, 1.06 percent. Standard, 0.5 percent. C. E. VANDERKLEED.

Jalap.—One sample, 7.17 percent. Standard, 7 percent total resin. C. E. VANDERKLEED.

Jalap Resin.—One lot was not completely soluble in five times its weight of ammonia water. C. E. Vanderkleed.

Keiselguhr.—Much offered for pharmaceutical use; contains organic matter from which it should be freed by ignition. C. E. Vanderkleed.

Kola.—Ten lots. Highest, 2.02 percent. Lowest, 1.4 percent. Average, 1.582 percent. Standard, 1 percent. C. E. Vanderkleed.

Lime Chlorinated.—Standard, 30 percent chlorine. 20 percent available chlorine, 8 percent, 10 percent; 34 percent available chlorine, 30.7 percent, 33.7 percent.

E. L. Patch.

Liniment of Camphor.—10 percent, 35 percent, 66 percent, 69 percent of official.

N. A. R. D. Journal.

Lobelia Herb.—One lot, 0.5910. Standard, 0.5 percent. C. E. Vanderkleed.

0.520 percent to 0.56 percent. E. L. Patch.

Lupulin.—Ten lots gave ether soluble portion 55.5 percent, 55 percent, 57.1 percent, 58.6 percent, 54.7 percent, 67.6 percent, 55.3 percent, 44.2 percent, 69.2 percent and 68.2 percent. Ash, 8.23 percent, 7.72 percent, 7.6 percent, 10.7 percent, 19.4 percent, 13.3 percent, 18.3 percent, 28.4 percent, 12.8 percent and 14.4 percent. The U.S.P. requires 60 percent soluble in ether and 10 percent ash. C. E. Vanderkleed.

Five lots varied from 2.5 percent to 14.1 percent ash. Conditions have improved with this article. W. L. Scoville.

Magnesia Calcined.—Water, 10 percent, 96.14 percent MgO in ignited residue; water, 4 percent, 93.7 percent MgO in ignited residue; water, 5 percent, 95.93 percent MgO in ignited residue; water, 5 percent, 96.2 percent MgO in ignited residue.

E. L. Patch.

One lot contained only 93.9 percent MgO after ignition. U.S.P. requires 96 percent. None of the lots examined the past year gelatinized with water as required by the U.S.P. and most contained an excess of calcium over the U.S.P. limits. C. E. Vanderkleed.

Varies much in its lightness. Uniformity in this respect is very desirable for stock preparations, but less important for other purposes. W. L. Scoville.

Magnesium Carbonate.—Two of six lots were low in MgO after ignition, assaying 92.6 percent and 94.8 percent, respectively. Five of the six contained calcium in excess of U.S.P. limits. Otherwise all were U.S.P. C. E. Vanderkleed.

Varies in density. W. L. Scoville.

Magnesium Carbonate.—44.4 residue representing 92.93 percent MgO; 45 percent residue representing 92.58 percent MgO; 45 percent residue representing 93.03 percent MgO; 44 percent residue representing 92.86 percent MgO; 44 percent residue representing 94.69 percent MgO; 44 percent residue representing 91.95 percent MgO. E. L. Patch.

Magnesium Sulphate.—Dried, purified, gave usual variation in water content. Five lots contained 14.9 percent, 26.9 percent, 27.7 percent, 29.8 percent and 31.5 percent.

C. E. Vanderkleed.

Magnesium Sulphate.—Cryst. Of 15 lots, only one was free from chloride. The others contained from a trace to 0.5 percent. E. L. Patch.

Manaca.—There has been considerable dispute over the identity of genuine manaca, a drug that is coming to be used very extensively. The manaca that was formerly most seen was cylindrical, purplish-brown, smoothish and mostly of the thickness of the fingers. Then sometimes came, and of late usually, an irregular, thick, heavy, hard, tapering root with a surface covered with a scaly, tissue-like membrane. It was a question which was genuine until we found both attached, the former being the stem, the latter the root.

H. H. Rusby.

Manganese and Ammonium Citrate.—Mn_3O_4, 26 percent, 26 percent, 26 percent, 26 percent, 24 percent. E. L. Patch.

Manganese Dioxide C. P.—One lot contained some insoluble residue in test for antimony sulphide and insoluble substances, but was otherwise U.S.P.

C. E. Vanderkleed.

Manganese Sulphate.—Continues to vary greatly in water content. Seven lots gave 29.4

percent, 31.7 percent, 32.3 percent, 32.5 percent, 35.9 percent, 37.3 percent and 37.4 percent. Four were above the U.S.P limit of 32.3 percent. These figures for moisture were obtained by employing the lowest possible red heat on the manganese sulphate in a porcelain crucible. The U.S.P. directs gentle ignition. Different loss is occasioned by different degrees of ignition. C. E. VANDERKLEED.

Methyl Alcohol.—40 percent found in a hair lotion.
JOUR. AM. PH. ASSOC., Jan. 15, Page 135.

Methylene Blue.—Continues to show ash in excess of U.S.P. limit of 0.008 Gm. per 2 Gms. of sample. C. E. VANDERKLEED.

Has to be watched closely for zinc. Many lots contain it. W. L. SCOVILLE.

Mustard.—Several peculiar forms of mustard, both yellow and brown, have come to us this year. One was straight Brassica juncea and another a yellow seeded variety of the same. Another was Brassica cernua. All mustard imported has undergone a very remarkable improvement as to cleanliness and freedom from weed seeds. H. H. RUSBY.

Myrrh.—Considerable difficulty has been experienced with myrrh, several lots of which have contained many dark, soft and sticky pieces, of peculiar, intense, bitter taste. It has been successfully maintained that this is genuine myrrh. If so, the U.S.P. description should be so changed as to include them. H. H. RUSBY.

Nitroglycerin Tablets.—1–50 gr., 89.3 percent of standard strength, 93.3 percent, 103 percent, 100 percent; 1–100 gr., 99.73 percent of standard strength, 100 percent, 83.3 percent, 100 percent; 1–100 gr., 106.6 percent of standard strength, 103 percent. E. L. PATCH.

Nux Vomica.—Seven lots. Highest, 1.328 percent. Lowest, 0.705 percent. Average, 1.013 percent. Standard, 1.25 percent strychnine. C. E. VANDERKLEED.

1.175 percent, 1.195 percent, 1.1155 percent, 1.155 percent, 1.23 percent.
E. L. PATCH.

The difficulty of obtaining supplies of nux vomica has been the cause of the importation of considerable quantities of ignatia, probably for the extraction of strychnine.
H. H. RUSBY.

OILS.

Oil Benzaldehyde.—Contaminated with chlorine products.

Oil Cinnamon Leaf.—Substituted for oil Ceylon cinnamon.

Oil Turpentine.—Adulterated with mineral oils.

Oil Cottonseed.—Adulterated with corn oil and sunflower oils.

Oil Sandalwood.—Substituted by mixture of oil of Amyris and oil copaiba.

Oils of Lavender, Juniper Berries and Red Thyme.—Not of U.S.P. quality.
DEPT. AGRIC.

Oils Volatile.—The oils distilled in this country have given no trouble, but the difficulties of importation have led to some attempts at adulteration. The mixing of natural and synthetic products seems to have increased and some oils are difficult to obtain of satisfactory quality. Oil rose, oil rose geranium, oil eucalyptus and oil neroli are instances of oils difficult to obtain of satisfactory quality. Oils of lemon and orange differ as usual, particularly the terpeneless oils. Oils of bitter almond, lavender, eucalyptus, savin and sandalwood require careful watching, not only for chemical vagaries, but for physical results. Artificial and synthetic oils vary much more than before the war and are difficult to secure of satisfactory quality.
W. L. SCOVILLE.

Oil Anise.—Two lots were *nil* in optical rotation but answered all other U.S.P. requirements. U.S.P. requires lævogyrate rotation. C. E. VANDERKLEED.

Oil of Birch.—Twenty-two packages consisted in whole or part of methyl salicylate.
DEPT. AGRIC.

Oil Lemon.—Six lots tested; 3.52 percent, 3.56 percent, 3.63 percent, 4.08 percent, 4.18 percent and 4.32 percent citral by the method of J. C. Umney in Perfume anl Essential Oil Record, 1913, 4–269.

Oil Lemon, Extra Strong.—There is no declared citral content on this product and it varies accordingly. Two lots gave 12.55 percent and 21.5 percent by method of J. C. Umney.
C. E. VANDERKLEED.

Oil Mineral.

	Specific gravity
Odorless, tasteless, colorless	0.847 at 25° C.
Odorless, tasteless, fluorescent	0.854 at 25° C.
Odorless, foreign taste, fluorescent	0.853 at 25° C.
Odorless, tasteless, yellowish	0.867 at 25° C.
Odorless, tasteless, colorless	0.837 at 25° C.
Odorless, tasteless, colorless	0.853 at 25° C.
Odorless, fluorescent, tasteless	0.856 at 25° C.
Odorless, fluorescent, tasteless	0.860 at 25° C.
Odorless, colorless, tasteless	0.857 at 25° C.
Odorless, colorless, tasteless	0.877 at 25° C.
Odorless, colorless, tasteless	0.880 at 25° C.
Odorless, colorless, tasteless	0.849 at 25° C.

Several samples gave dark color with sulphuric acid test. E. L. PATCH.

The Russian variety being practically unobtainable, recourse must be had to oil from other sources. These oils are difficult to obtain free from kerosene taste and fluorescence and are much lower in specific gravity than is desirable. C. E. VANDERKLEED.

The disappearance of the Russian oil from the market caused much trouble for a time, but the conditions now are met satisfactorily with American oils and the Russian oil is no longer missed. W. L. SCOVILLE.

Oil Wintergreen.—Three packages in whole or part, methyl salicylate. One, 75 percent methyl salicylate. DEPT. AGRIC.

Oil Wormseed.—One lot adulterated with 44 percent of a fixed oil. Oil wormseed ordinarily averages 1.5 percent of non-volatile residue. C. E. VANDERKLEED.

Opium Gum.—Nine lots. Highest, 12.35 percent. Lowest, 11.31 percent. Average, 11.74 percent. Standard, 9 percent crystallized morphine. C. E. VANDERKLEED.

Opium, Powdered.—Six lots. Highest, 12.58 percent. Lowest, 11.84. Average, 12.11 percent. Standard, 12 percent to 12.5 percent morphine. C. E. VANDERKLEED.

Opium Antidote in Capsules.—Prove to be 4 1-5 grains of opium assaying 11.74 percent morphine in each capsule. E. L. PATCH.

Origanum.—Great quantities of origanum for use as a condiment continue to arrive as thyme, the thymol taste being very strong. H. H. RUSBY.

Oxgall, Powdered.—All lots were free from starch, a decided improvement in this product. C. E. VANDERKLEED.

Papain.—Two lots inferior, no starch present but only half usual power. One other, 16.7 in neutral, 22.4 in alkaline solution, and one 18.6 and 24. E. L. PATCH.

Paw Paw Juice.—Of fourteen samples nine were below standard. Several of these contained starch. One sample was 135 percent of standard. W. L. SCOVILLE.

Pepsin.—Pepsins are said by Ernest Quant to be frequently contaminated with bacteria.

Potassium Binoxalate.—One Gm. usually requires 11.65 Cc. normal KOH solution to neutralize. One lot was weak. Three samples from different parts of the container required 8.2 Cc., 9 Cc., 9.8 Cc. E. L. PATCH.

Potassium Cyanide.—Contents so labeled tested for carbonate and contained 3.1 percent cyanide. E. L. PATCH.

Prescription Variation.—The following prescriptions were summarized, and while the data given show some variations, as a whole they were better than what has previously been shown with reference to compressed tablets on the market.

℞ No. 1—	No. of samples	Variation
Antipyrin, gr. ii		1.28 gr. to 2.17 gr. = −36 percent to + 8 percent
Sodii salicylat., gr. v	16	4.49 gr. to 6.22 gr. = −10 percent to + 20 percent
Make 10 such capsules.		
℞ No. 2—		
Antipyrin, gr. ii		1.9 gr. to 2.7 gr. = − 5 percent to + 35 percent
Sodii bicarb., gr. x	18	4.9 gr. to 10.2 gr. = −50 percent
Make 10 such powders.		

℞ No. 3—			
Phenacetine, gr. v		4.2 gr. to 5.46 gr.	= — 16 percent to + 11 percent
Salol, gr. v	20	3.81 gr. to 5.25 gr.	= — 24 percent to + 5 percent
Make 10 such capsules.			
℞ No. 4—			
Salol, gr. iii		2.17 gr. to 3.44 gr.	= — 27 percent to + 15 percent
Quininæ sulphat., gr. iii .	20	1.79 gr. to 3.56 gr.	= — 40 percent to + 18 percent
Make 10 such capsules.			
℞ No. 5—			
Acetphenetidini, gr. iii ..		1.5 gr. to 3.8 gr.	= — 50 percent to + 27 percent
Bismuth subnit., gr. iii ..	55		
Sodii bicarb., gr. x			
Make 10 such powders.			

Prescription No. 1 showed two substitutions of acetanilide for antipyrin; under no conditions was this excusable. No. 5 likewise showed two substitutions of acetanilide for acetphenetidin and one for bismuth subnitrate, subcarbonate being used; in this prescription there is possibly some excuse for acetanilide being found, and if the prescription had called for a liquid in connection with the combination, the pharmacist would have been justified in using bismuth subcarbonate.

N. A. R. D. Journal, 1915.

Prune Juice.—Specific gravity, 1.049. Extractive, 18 percent alcohol, 17.58 percent vol. 1 Cc. required 0.4 Cc. N/10 KOH.

Specific gravity, 1.087. Extractive, 26 percent alcohol, 13.26 percent vol. 1 Cc. required 0.9 Cc. N/10 KOH.

Specific gravity, 1.057. Extractive, 21 percent alcohol, 17.6 percent vol. 1 Cc. = 0.4 Cc. N/10 KOH.

Specific gravity, 1.049. Extractive, 19.3 percent alcohol, 18.58 percent 1 Cc. = .36 Cc. N/10 KOH.

Specific gravity, 1.057. Extractive, 20.5 percent alcohol, 18.58 percent 1 Cc. = .52 Cc. N/10 KOH. E. L. Patch.

Quassia.—Ash, 2.2 percent; extractive, 6 percent; ash, 2.2 percent; extractive, 4 percent; ash, 2.8 percent; extractive, 6 percent; ash, 2.4 percent; extractive, 5.8 percent; ash, 3.0 percent; extractive, 3.3 percent; ash, 8.0 percent; extractive, 7.0 percent. E. L. Patch.

Quebracho.—Two lots. Highest, 1.22 percent. Lowest, 0.95 percent. Average, 1.08 percent. Standard, 1 percent alkaloids. C. E. Vanderkleed.

Quinine Alkaloid.—Extreme variation in water content. Nine lots gave 0. percent, 7.3 percent, 9.3 percent, 11.3 percent, 12.5 percent, 12.7 percent, 13 percent, 15.1 percent and 20 percent. The U.S.P. allows 14.3 percent. C. E. Vanderkleed.

Quinine Pills.—

2 gr. gave 2.035 grains of Quinine Sulphate $7H_2O$.
2 gr. gave 2.077 grains of Quinine Sulphate $8H_2O$.
5 gr. gave 4.942 grains of Quinine Sulphate $7H_2O$.
5 gr. gave 5.044 grains of Quinine Sulphate $8H_2O$.
2 gr. gave 2.035 grains of Quinine Sulphate $7H_2O$.
2 gr. gave 2.075 grains of Quinine Sulphate $8H_2O$.
2 gr. gave 1.8 grains of Quinine Sulphate $7H_2O$.

E. L. Patch.

Rose.—Several shipments of "rose petals" have been received which consisted of the entire bud with calyx attached. H. H. Rusby.

Saffron.—Powdered stamens of crocus, and so labelled, among the interesting shipments of the year. H. H. Rusby.

Santonica.—Many large shipments have arrived of a form of this drug that is most puzzling. It so closely resembles the genuine that it may well be regarded as a young form of it and its odor is exquisite. On assay it is found to contain less santonine, often very little and sometimes none. It is shorter, greener and often has a short piece of peduncle attached. It is much in need of investigation. H. H. Rusby.

Sarsaparilla, Mexican.—Two shipments of Mexican sarsaparilla were of such a peculiar appearance as to suggest that they represented a different species of smilax.

H. H. RUSBY.

Soap.—Powdered castile soap has 1 percent to 6 percent moisture. Two lots only partly dissolved in hot alcohol and solidified on cooling. E. L. PATCH.

Sodium Bisulphite.—One lot assayed but 64 percent $NaHSO_3$.

Sodium Iodide.—One lot assayed 95.2 percent NaI, the low assay being due to moisture.

C. E. VANDERKLEED.

Sodium Phosphate Monobasic.—99 percent anhydrous. Triturated, 94.14 percent NaH_2PO_4 anhydrous. 108.27 percent of monohydrated. E. L. PATCH.

Sodium Salicylate.—Two lots assayed 97.2 percent and 98.4 percent instead of the U.S.P. 99.5 percent. C. E. VANDERKLEED.

Spirit Ammonia Aromatic.—Lots deficient in ammonia carbonate and in ammonia water. One lot, three times too much ammonia, showed that 28 percent instead of 10 percent had been used. N. A. R. D. JOURNAL.

Spirit Camphor.—2 percent, 30 percent, 40 percent, 43 percent, 80 percent, 82 percent of official. One lot, 33 percent alcohol. N. A. R. D. JOURNAL.

Stramonium Leaves.—One sample, 0.219 percent alkaloids. Standard, 0.25 percent.

C. E. VANDERKLEED.

Strontium Peroxide.—One lot assayed only 69.2 percent absolute SrO_2 which is below the 84.5 percent stated by the N. & N. R. for a good product. C. E. VANDERKLEED.

Strychnine Alkaloid.—One lot was dark colored and contained excess of brucine.

E. L. PATCH.

Tablets Below Standard.—Acetanilide, 1.86 gr. instead of 3 gr.; 2.46 gr. instead of 3 gr.; acetanilide, 1.847 gr. instead of 2.5 gr.; 2.563 gr. instead of 3½ gr.; caffeine, 0.47 gr. instead of 1 gr.; 0.22 gr. instead of 0.5 gr.; quinine sulph., 0.66 gr. instead of 3 gr.; phenacetin, 2.35 gr. instead of 3 gr.; sodium salicyl., 4.24 gr. instead of 5 gr.; salol, 1.94 gr. instead of 2.5 gr. morph. sulph., 0.0206 gr. instead of 0.0417 gr.; strych. sulph., 0.036 gr. instead of 0.025 gr.

DEPT. AGRIC.

Terra Alba.—The trade still differs as to what the composition of terra alba should be. Most of the lots examined were calcium sulphate, but one lot was clay, another clay with much calcium sulphate, and another clay with a little calcium sulphate.

C. E. VANDERKLEED.

Tragacanth.—The year has been characterized by a great deal of dark, dirty and inferior tragacanth. As I have before remarked, a tragacanth several shades darker than the U.S.P. makes a perfectly white powder, and its use should be permitted. A great deal of this year's shipment, however, has been of a grade quite unfit for any but technical uses. It is not at all unlikely that considerable of it, admitted for technical use, has been sold in powdered form for medicinal purposes. The sale of India gum as tragacanth has ceased, for the simple and sufficient reason that the India gum has become the more valuable of the two. This is because of its very extensive use for one of the most contemptible forms of adulteration, that of ice-cream. H. H. RUSBY.

Triticum.—Our market has received a good deal of rather inferior triticum. The U.S.P. requirement "deprived of its roots" is met by cutting each internode of the rhizome off close to the nodes, which bear short root fragments. These nodes are supposed to be rejected, but this year many of them have been offered for import. Probably they were intended for use in nostrums, of which this drug is a common ingredient. Some triticum with the nodes attached has been received and there have been several shipments, under the name triticum, of a totally different grass rhizome. H. H. RUSBY.

Veratrum.—One lot, 1.32 percent. Standard, 1 percent alkaloid.

C. E. VANDERKLEED.

Wormseed.—A great amount of spurious Levant wormseed, or santonica, has been offered. This variety has an agreeable lemon odor and is of a light green color. The heads are shorter and more rounded than the genuine and mostly have a short stem attached. The article contains very little santonin. H. H. RUSBY.

Zinc Oxide.—99 percent ZnO; 99 percent ZnO; 99.16 percent, 98.96 percent. One lot, 96.93 percent, contained lead.
E. L. PATCH.

Considerable difficulty was experienced in securing a quality to meet the U.S.P. test for heavy metals. Most gave only a slight test, but were not U.S.P.

W. L. SCOVILLE.

COMMITTEE
EDGAR L. PATCH
LYMAN F. KEBLER
H. H. RUSBY

NOTE.—After the paper was printed, except the last sheet, a letter was received from C. E. Vanderkleed of the Committee, objecting to the statement in the last paragraph on the first page, in relation to keeping qualities of digitalis and to the reference to chemical and physiological tests. Aside from this, he approved the report. His letter follows:

July 20, 1915.

In reply to your letter of July 12th, containing preliminary sheets of the report of Committee on Drug Market, I beg to state that for the most part I approve of the report as outlined. I am not entirely in accord, however, with certain statements in the last paragraph on the first page.

I quite agree with the report that it is not practicable to guarantee the keeping qualities of all products. Neither can the manufacturer, be he large or small, regulate how preparations, prone to deterioration, are going to be kept after they leave his laboratory. So far, so good.

I am not in accord, however, with the references to the paper of Prof. Hatcher, who, basing his opinion on a relatively small number of drugs and preparations, concludes that digitalis does not deteriorate. In my own laboratory, having access to the records of tests of hundreds of samples, I am prepared to maintain that digitalis preparations *may* deteriorate, and often *do* deteriorate.

I do not question for one minute the results which Dr. Hatcher got with the preparations which he tested. It is entirely possible that he may have found a twenty-year-old sample that assayed better than a year-old sample. It is also even possible that he may have had a ten-year-old tincture testing as good as some freshly made.

We have records of many digitalis preparations, which, on re-examination after several months or years, show no deterioration. But, on the other hand, we have numerous instances where a considerable amount of deterioration did occur. Consequently, it is not safe to presume, because certain preparations did not deteriorate, that this drug and its preparations are not prone to deterioration.

I also object to the sentence reading as follows: "Then it is important to know whether the value of a product is determined by accurate chemical tests or inaccurate physiological experiment." The above sentence is certainly true when it comes to comparing really accurate chemical tests with really inaccurate physiological experiments. What I object to in the sentence is the implication that chemical tests are always accurate and physiological experiments always inaccurate. I have seen, and we have all seen, many chemical tests that fall far short of accurately portraying physiological activity, and we also know of many physiological determinations, such, for example, as those used for the standardization of adrenal preparations, which are far more accurate than any chemical test that has been devised.

It is, therefore, not merely a question of the accuracy or inaccuracy of the individual operator, but chemical tests may sometimes lead to wrong conclusions quite as well as physiological experiments. Take, for example, aconite preparations. On deterioration, a tincture of aconite may continue to show by chemical assay the full amount of required alkaloid, but on physiological test be found to be relatively inert. I would, therefore, suggest that this sentence be eliminated.

Please consider that this criticism of the report comes from one who is primarily a chemist, not a physiologist. Nevertheless, I do not deem it wise, in a report of this kind, to allow a discussion as to the relative merits of two different kinds of work, each absolutely essential to the standardization of drug products, to appear.

If these modifications can be made, I should be very glad indeed to have my name added to the report.
Very truly yours,

(Signed) CHAS. E. VANDERKLEED.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CHICAGO.

The April meeting of the Chicago Branch of the American Pharmaceutical Association was held Tuesday evening, April 25th, at Kuntz-Remmlers and was preceded by a dinner at which Dean Frederick J. Wulling of the University of Minnesota was the guest of honor.

Dr. J. H. Beal, of Urbana, presented the address of the evening, "The Pharmacist and the Law." The address was a remarkably clear and accurate presentation of present-day conditions regarding the host of restrictions and requirements that the law now throws upon the pharmacist. It pointed out also the indications of an avalanche of new laws within the coming year or so bearing many more most onerous and unjust limitations of the drug business. In conclusion, Dr. Beal pressed home the warning that the organized pharmacists of the country must watch and influence all legislation regarding pharmacy coming before our legislative bodies.

The address was most heartily received and indorsed, and motion was made that the publication committee of the parent association be requested to prepare reprints of it which could be sent to the officers and legislative committees of the state pharmaceutical organizations.

Dr. Wulling presented the greetings of the Northwestern Branch of Minneapolis and discussed the legislative outlook in Minnesota. He said the legislative committee was well organized, with one member from each legislative district, and was instructed, not only to watch carefully all bills brought before the legislature, but also to prepare an amendment to the pharmacy law requiring a college education in pharmacy as a prerequisite to the State Board examination.

Secretary H. C. Christensen, speaking for the National Association of Boards of Pharmacy, stated that, so far as he could learn, in about twenty-five states prerequisite legislation would be asked for.

In the business session of the Branch the deferred report of the committee on amendment of the declaration and by-laws was adopted with some modifications. The principal discussion arose over the point as to whether the Branch should continue to include in its membership all members of the parent association resident in or near Chicago, or whether only such American Pharmaceutical Association members as paid dues to the Branch should be included. It was decided to continue the former plan and look for financial support to the voluntary contributions of members of the Branch. Dr. Beal made the suggestion that the Association offer its Certificates of Membership to the Branch for sale to the members of the Branch, the returns from such sale to go into the treasury of the Branch.

Mr. Gray moved that our delegates (to be appointed at the May meeting) to the Atlantic City meeting be instructed to invite the Association to meet in Chicago in 1918, the twenty-fifth anniversary of its last meeting here. Professor Clark moved as an amendment that the Chicago Branch institute an active campaign to obtain the 1918 meeting for Chicago. Unanimously adopted with enthusiasm.

E. N. GATHERCOAL, *Secretary.*

CITY OF WASHINGTON.

The April meeting of the City of Washington Branch of the American Pharmaceutical Association was devoted to a discussion of the proposed Recipe Book, by M. I. Wilbert, and also the Appendix to the British Pharmaceutical Codex by Mr. Wilbert.

Mr. Wilbert pointed out that the idea was one of the many good ones that have been proposed by Mr. H. P. Hynson, and was intended originally as a guide solely for the purpose of having something that contained formulas that were not official, yet for which there was a certain demand. These formulas were to be more or less suggestive and intended for the purpose of establishing whether or not they had any value.

He further pointed out that the retail druggist had thus far failed to coöperate in the work and thereby had lost an opportunity. With such a book containing standard and harmless formulas for toilet preparations, cosmetics and household remedies, they would be in a position to recommend to the public something that had some value and at the same time safeguard the public health by warning them against the use of many preparations now on the market containing heavy metals, all of which were harmful. He also stated that, in this judgment, he believed that pharmacy legislation had had a downward influence on the pharmacist, for the reason that all were now placed on the same level; thus the disappearance of the former scientific pharmacist of standing in his community, who was looked up to for counsel and advice by the public. The public now believe that the license granted makes any holder thereof equal to the other fellow, and, as a result, we find that the majority of pharmacies are to-day small department stores or junk shops.

He pointed out the good work that had been done on the Appendix of the British Pharmaceutical Codex, and showed that many things could be found in this publication that under ordinary conditions could not be found without difficulty.

After considerable discussion, the meeting adjourned.

The next meeting of the Branch will be held at the Drug Farm of the Institute of Industrial Research, some time the latter part of May.

S. L. Hilton, *Secretary.*

NASHVILLE.

A joint meeting of the Nashville Branch American Pharmaceutical Association and the Nashville Drug Club was held Thursday afternoon, April 13th, in the Music Room of the Nashville Y. M. C. A.

D. J. Kuhn, President of the Nashville Drug Club, who has recently recovered from an operation for appendicitis, presided. An unusually large crowd was present to hear the address of Mr. J. M. Barrett, special representative of the National Association of Retail Druggists, on the subject of Legislation. Mr. Barrett proved to be a forceful speaker and held the attention of his audience for over an hour. He began by showing the need of organization in all lines of endeavor, and paid a glowing tribute to the great work being accomplished by the American Pharmaceutical Association, National Association of Retail Druggists, National Wholesale Druggists' Association and State Associations. He said many things can be accomplished by coöperation and concerted action that would utterly fail if attempted single handed. The passage of the Harrison Law was cited as being the result of united action of the drug trade.

He told of the splendid organization of druggists in Indiana, and of the many good things they have accomplished by pulling together. The public has an idea that druggists are making enormous profits and at every meeting of state and national legislative bodies numerous bills, harmful to the drug trade, are introduced, and it is only by vigilant and unrelenting efforts that they can be defeated. He believed in a thorough and systematic organization of all drug interests in the state, and outlined a plan whereby this could be accomplished, pledging his assistance in its perfection. From a business standpoint every druggist should realize that it is to his interest to take an active part in legislative affairs. If druggists do not look after legislation affecting them, others less capable will, to their sorrow.

The patent medicine question is one that he thinks will confront future legislators, and he urged the druggists to give it careful thought. He commented on the plan of organization of the Nashville Drug Club, which connects it with a collecting agency that looks after its finances; he stated that it was the best he had ever seen.

The U.S.P. and N.F. Propaganda was strongly endorsed, and every listener advised to give it his hearty support. Unanimous action was then taken endorsing his legislative plan.

President Kuhn thanked Mr. Barrett on behalf of the body for his splendid address. A motion was passed appointing S. C. Davis as delegate to the Central Health League of this city, after which the meeting adjourned.

William R. White, *Secretary.*

NEW YORK.

The April, 1916, meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Lascoff at 8.30 o'clock, on the evening of the 10th.

The Minutes of the previous meeting were read by the Secretary and adopted.

The Treasurer presented his report, which was accepted with thanks.

Mr. McElhenie, Member of the Council, being absent, no report was rendered.

Chairman McCartney of the Membership Committee presented the names of the following gentlemen for membership in the parent association, and the Secretary was requested to forward them to the General Secretary: Julius Kramer, 723 Ninth Avenue, New York; Robert C. Purcell, 280 Pearl St., New York; Zachary Joshua Loussac, 107 Front St., Juneau, Alaska; Eugene James Cardarelli, 99 Wilson St., Brooklyn, New York; Lewis Nathan Brown, 115 West 68th St., New York; Lucius P. Brown, 137 Davis Avenue, W. New Brighton, S. I.

For membership in the New York Branch, Mr. McCartney presented the following: Pierre Arnold Bernard, P. O. Box 45, New York; Carl Paul Schlicke, 440 Washington St., New York, N. Y.; Morris Kantor, 184th St. and Audubon Avenue, New York.

Dr. Anderson, reporting for the Committee on Legislation and Education, advised the members present that action on the Stevens Bill is pending. Dr. Anderson reported further that the bill introduced in the New York Legislature, increasing the preliminary education of pharmacy students to 30 counts, is so worded that it will exclude from the licensing examinations all applicants who did not have, at the commencement of their pharmacy course, 30 Regents' counts, and would therefore militate against those entering upon the study of pharmacy prior to the new requirements, who might not come up for examination before the State Board until after 1916.

Dr. Anderson's report was received with the thanks of the members.

For the Committee on Fraternal Relations, Dr. Diner, Chairman, reported progress.

Dr. Diekman submitted a voluminous report on the progress of pharmacy and new remedies. This report was discussed by Drs. Raubenheimer, Weinstein, and Diner, and was accepted with thanks.

The gentleman proposed for membership in the Branch (Messrs. Bernard, Schlicke and Kantor) were then elected.

Mr. Leo Roon presented an interesting paper on " The Physical Significance of Emulsions."

In the discussion which followed, Dr. Wimmer expressed his satisfaction that the writer is applying his studies to the physical side of pharmaceutical preparations, Dr. Arny amplifying and emphasizing Dr. Wimmer's remarks. A further general discussion of Mr. Roon's paper followed, in which Drs. Diekman, Diner, Weinstein, Schaefer, Raubenheimer, Lascoff, Mayer, Fried and Turner joined.

After Mr. Roon had answered questions and replied to criticisms, he was extended a vote of thanks by the members present.

Due to the lateness of the hour, Dr. Novack's paper on the " Physical Phenomena Pertaining to Solution and Crystallization" was not presented. It was voted that this be postponed to some future meeting.

Dr. Raubenheimer introduced a resolution on behalf of the importation into the United States of medicines, which is being seriously interfered with by the belligerent nations. This resolution was adopted by the Branch.

PROFESSOR RAUBENHEIMER'S RESOLUTION.

WHEREAS the importation of medicines into the United States has been seriously interfered with by the belligerent nations, and in the majority of cases has been entirely stopped,

WHEREAS the suffering public in the United States is thereby deprived of much needed remedies for the cure and relief of disease,

WHEREAS the importation of medicinal substances to neutral countries should not be interfered with by the nations at war, provided that satisfactory guarantee be given that such supplies are not resold to belligerent countries,

Be it resolved, unanimously, at the regular meeting, April 10, 1916, of the New York Branch of the American Pharmaceutical Association, consisting of over —— members, all citizens of the United States, that the Hon. Robert S. Lansing, Secretary of State, is earnestly requested to take immediate steps to remedy these deplorable conditions, so that the suffering humanity in our country can be supplied with much needed imported medicines, not manufactured in the United States.

Mrs. Gay's suggestion with reference to publicity was referred to the New York Pharmaceutical Conference.

There being no further business to come before the meeting, an adjournment was taken, subject to the call of the chair.

JEANNOT HOSTMANN, *Secretary.*

NORTHWESTERN.

The Spring meeting of the Northwestern Branch of the American Pharmaceutical Association was held at the College of Pharmacy, University of Minnesota, April 18th. A brief business session preceded the program, which was as follows:

1. Demonstration on color photography, illustrated with views of medicinal plants in which the natural colors had been reproduced, by E. L. Newcomb.
2. Report on Publicity Work of the Minnesota State Pharmaceutical Association, by E. L. Newcomb.
3. Excursion through the McLaughlin-Gormley-King Drug Milling Plant.

Secretary Newcomb first presented the report of the Publicity Committee and then proceeded with the demonstration on color photography. The principle involved in the making of Lumière and other color process plates was briefly explained, and then views representing medicinal plants, which had been grown at the College of Pharmacy, were reproduced upon the screen. A number of views taken at Como Park were also shown. Among the medicinal plants illustrated, the following were particularly attractive and the coloring quite accurately reproduced: Hyoscyamus, cypripedium, digitalis, skunk cabbage, insect flowers, comfrey flowers, flowers of datura species, delphinium, and roses. Dr. Newcomb stated that much of the work in connection with the preparation of the slides had been done by Mr. Henry Morris, of the photographic department of the University.

Following the papers those in attendance walked in a body to the drug milling plant and, under the guidance of Mr. G. A. N. King and Dr. Eugene Friedmann, were shown through one of the most completely equipped drug milling plants in the country. Among other drugs, the grinding of which was inspected, the following proved of special interest: gentian, fœnugreek, licorice, nux vomica, myristica, cinnamon and hepatica.

Much interest was manifested by the members in the warehouse, where tons of crude drugs of all kinds were on display.

E. L. NEWCOMB, *Secretary.*

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the A. Ph. A. was held in joint session with the Philadelphia County Medical Society at the College of Physicians and Surgeons, Wednesday evening, April 26th.

Owing to the unusual conditions, all business was dispensed with, and the entire evening devoted to the following papers:

Dr. Robert P. Fischelis: "How Physicians and Pharmacists Can Coöperate in the Use of Available Drugs."

Dr. John R. Minehart: "What Should Be Done To Help Solve the Drug Problem?"

Mr. George M. Beringer: "The U. S. Pharmacopœia, the National Safeguard Against Adulteration."

The papers were formally discussed by Dr. S. Solis Cohen, Dr. Horatio C. Wood. Jr., Prof. Charles H. LaWall, Mr. Ambrose Hunsberger, and Dr. Franklin M. Apple.

During his discussion of the papers, Prof. Remington announced, officially, that the U.S.P. IX would make its appearance September 1, 1916.

J. ED. BREWER, *Secretary.*

SAN FRANCISCO.

The San Francisco Branch of the American Pharmaceutical Association met on Thursday evening, April 13, 1916, in the office of the Pacific Pharmacist. President Lengfeld presided. The minutes of the March meeting were read and approved. The Publicity Committee reported that plans were about completed for the open meeting on Friday evening, May 5, 1916, in Assembly Hall, 246 Pacific Building. Captain Wayne H. Crum, Medical Corps, U. S. Army, will speak on "Pharmacy and National Preparedness." Communications from the Midland Druggist and Pharmaceutical Review and from the Stirring Rod were received.

Dr. A. S. Musante, Dr. Zieg and Dr. J. H. Dawson were appointed a committee on Conventions and Pharmaceutical Gatherings. Mrs. R. E. White, Mr. C. M. Twining and Mr. J. L. Lengfeld will constitute a committee on Drug Market.

Mr. C. M. Twining demonstrated the making of a bacterial vaccine. The sealed collecting tube, containing pus from an abscess, as it is sent in by the physician, was shown, then the platinum wire by which the pus is transferred from this container to culture media on which the bacteria are grown, the method of streaking out the pus on blood-agar culture media to grow the bacteria in separate colonies to get the pure culture, the pure cultures planted on individual tubes ready to be washed off with salt solution, the sterile suspension of bacteria in a hermetically sealed tube in which it is stored, a concentrated mixed vaccine made up of nearly one hundred strains of the particular bacterium exhibited (B. Coli), sterile and ready to be diluted to make the resulting vaccine to any count desired by the physician, a package of finished vaccine in specially made small bottles ready for use. At four steps during the process, to insure absolute safety, the vaccine is tested for sterility by means of a Hall tube. This tube is so built that aërobic and anaërobic growths are obtained in the same tube. Mr. Twining was formally thanked by the members for his interesting talk.

The informal discussion of the evening was the manufacture of chemicals in the pharmacist's laboratory. It was shown that many chemicals, of which there may be an excess stock, could easily be converted into some expensive, much-needed articles. Examples given were the manufacture of white precipitate from mercuric chloride, thymol diiodide from thymol, and bismuth sub-nitrate from bismuth oxychloride. A useful, inexpensive and easily made drying apparatus was shown.

President Lengfeld explained his system of prescription records.

It was decided to offer a membership prize in the American Pharmaceutical Association to the student of the graduating class of the California College of Pharmacy who stands highest in Theory and Practice of Pharmacy, and who, in the estimation of the Professor of this branch, will be most appreciative of such honor.

The Treasurer reported a balance of $25.25. The members adjourned to meet on Friday evening, May 5, 1916, 246 Pacific Building, Fourth and Market Streets.

Clarissa M. Roehr, *Secretary.*

ST. LOUIS.

Dr. James H. Beal lectured before the St. Louis Branch of the A. Ph. A. on "The Burdens Imposed by Reformatory Legislation," March 17th. The auditorium was filled with an audience representing the various branches of pharmacy.

Dr. Beal commented on the disagreeable features of modern reformatory legislation, and emphasized the burdens put upon law-abiding citizens who are in no way responsible for the abuses that the laws are intended to eradicate. He was willing to accept with resignation a certain amount of penalizing of the innocent in order to punish the guilty, but contended that the modern tendency is to forget the innocent in a rather fruitless effort to catch the guilty. Dr. Beal emphasized the fact that many substances and articles are extremely useful when properly employed and correspondingly harmful when wrongfully handled. He pointed out that sharp-edged tools are potent agents of harm, but legislators recognize their practical value and do not unnecessarily hamper legitimate uses even though murders are committed with axes and persons are killed with butcher knives. The speaker laid stress on the tendency of modern times to apply special rules when it comes to transactions that pertain to the drug trade. The amount of inconvenience and expense thrust upon pharmacists is of no moment in the work of legislators who are anxious to place restrictions about the sale and use of medicines of great therapeutic value, and of possible misuse. He reviewed the alcohol question as it affects pharmacy and medicine. He cited the workings of state prohibition laws and the burdens placed on law-abiding citizens in order to reach the few who abuse their privilege of citizenship. He said, "Why should thousands of respectable druggists be subject to this restraint upon their business because a few persons have conducted saloons disguised as drug stores?" The habit-forming drug problem came in for extended consideration and a comparison was made between practical reformers and those who will be satisfied with nothing but absolute theoretical perfection. Dr. Beal gave emphasis to the beneficial effects already derived from the Harrison Anti-Narcotic Law and pleaded for a further and fair trial before law-makers dived into additional tinkering. Particularly lucid was Dr. Beal's discussion of the middle ground between total prohibition and unrestricted sale.

The audience was one which quickly realized that the evils and burdens described by Dr. Beal were not imaginary. From the pharmacy apprentice to the proprietor, manufacturer and jobber, the discussion appealed in a practical manner. He urged those present to enter upon a program of preparedness and see that new drug laws are not rushed through without giving the drug trade an opportunity to "stop, look and listen."

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 19.

PHILADELPHIA, PA., March 8, 1916.

To the Members of the Council:

GENTLEMEN:

Motions No. 34 (*Adoption of Proposed Resolution on Use of Text of National Formulary*), *No.* 35 (*Appropriation to Committee on Recipe Book*), *No.* 36 (*Time of Sixty-fourth Annual Meeting*), *No.* 37 (*Approval of Tentative Program for Sixty-fourth Annual Meeting*), and *No.* 38 (*Election of Members*); *applications Nos.* 73 *to* 100 *inclusive* have each received a majority of affirmative votes.

The following communication has been received by the Secretary of the Council from C. F. Nixon of Committee on Recipe Book:

"When your letter of September 6, 1915, arrived stating that I had been elected a member of the Committee on Recipe Book, I was pleased with the appointment, and replied that I would accept and try to perform the necessary duties. I was pleased, as I have always been interested in that kind of work, and appreciate the appointment.

"I have just received a letter from Chairman Raubenheimer, to the effect that work would begin at once. I am sorry to say that my health has not been good for a year or two, and I have been trying to drop some of my activities. In the meantime duties have come up that I must attend to, and I do not feel that I can take up the work that will be necessary in connection with this Committee. It is with real regret that I feel obliged to resign my position on the Committee, and am sorry that I did not do so in the first place. I did not at the time, as I hoped that I might be able to carry out my part of the duties. Will you please, therefore, accept my resignation?"

Mr. Nixon's term expires in 1916.

Mr. Nixon suggests William H. Glover, of 299 Essex Street, Lawrence, Mass., as his successor, as does also Otto Raubenheimer, Chairman of the Committee on Recipe Book, the latter stating that "Mr. Glover has contributed a number of papers to the A. PH. A. containing formulas and I am sure he will make good."

Motion No. 39 (*Acceptance of Resignation of C. F. Nixon as a member of the Committee on Recipe Book and election of W. H. Glover as his successor*). Moved by Dr. F. E. Stewart, seconded by C. H. La Wall, that the resignation of C. F. Nixon as a member of the Committee on Recipe Book be accepted, and that W. H. Glover be elected to succeed him.

The following communication has been received:

To the Members of the Council of the
American Pharmaceutical Association:

GENTLEMEN:

The Committee on Publication submits the following report:

To the Members of the Council:

GENTLEMEN:

Prof. E. G. Eberle assumed the duties of Editor of the JOURNAL on April 6, 1915, and conducted his work from Dallas, Texas, visiting the Publication Office at Columbus, Ohio, from time to time, and returning. Such a condition was recognized as temporary only, and at the San Francisco meeting, the Committee on Publication asked that the question of publication office be determined by the Association. After this question had been deliberated over and thoroughly discussed, the selection of the office of the JOURNAL was referred to the Editor and the Committee on Publication with power to act.

The Committee duly advertised for bids for the printing of the JOURNAL for 1916 and the firm of J. B. Lippincott Company of Philadelphia, being the lowest bidders, were awarded the contract.

The Philadelphia Drug Exchange very generously offered the use of its rooms in the Philadelphia Bourse Building, free of charge, as the office of the JOURNAL. Acting under the authority given at the San Francisco meeting of the Association, the Committee on Publication decided to accept this generous offer of the Philadelphia Drug Exchange and unanimously decided to establish the office of publication of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION in Philadelphia as its central office.

The Committee on Publication asks the Council to appropriate the sum of $100.00 to pay the travelling expenses of Editor Eberle in coming from Dallas, Texas, to Columbus, in December, 1915, and then to Philadelphia.

Editor Eberle has very strenuously insisted on personally paying the travelling expenses of himself from Dallas, Texas, to Columbus and return on the several trips that he made as Editor from April, 1915, to December, 1915. The Committee on Publication feels that this unselfish action and the devotion of our Editor to the interests of the Association should be made known to the members of the Council and we desire to express, as a Committee, our appreciation of his kindly offers and sincere efforts in behalf of the JOURNAL.

The JOURNAL office is now established in the new quarters, which offers every convenience and facility for work, and it is believed that this has been another forward step in the conduct of the JOURNAL and the history of the Association.

Very truly yours,

J. W. ENGLAND,
Chairman.

March 1, 1916.

The above appropriation is approved by the Committee on Finance.

Motion No. 40 (*Appropriation to Editor Eberle for Travelling Expenses*). Moved by G. M. Beringer, seconded by C. H. La Wall, that an appropriation of one hundred dollars be made to pay the travelling expenses of Editor Eberle in coming from Dallas, Texas, to Columbus, Ohio, in December, 1915, and then to the Philadelphia office of the JOURNAL.

Motion No. 41 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 101. Amanda Stahl Druehl, 623 Alaska St., Chicago, Ill., rec. by Herman Fry and Jean Gordon.

No. 102. Charles E. Hires, 206 S. 24th St., Phila., Pa., rec. by E. G. Eberle and J. W. England.

No. 103. Karl Francis Ehmann, 2020 Montgomery Ave., Phila., Pa., rec. by W. Robert Decker and Charles H. La Wall.

No. 104. Arthur A. Lee, Hospital Steward, U. S. N., U. S. Naval Training Station, San Francisco, Cal., rec. by Wm. B. Day and J. F. Rupert.

No. 105. Lucy Ann Loechtenfeldt, 727 Mt. Hope Road, Cincinnati, Ohio, rec. by Wilhelmina Fennel and Bertha Ott.

No. 106. Carl William Seitz, U. S. S. Oregon, San Francisco, Cal., rec. by Wm. B. Day and J. F. Rupert.

No. 107. Aime Joseph Lachapelle, 79th Ave. A., Turners Falls, Mass., rec. by Theodore J. Bradley and John G. Godding.

No. 108. Chanon A. Bernstein, 3136 Broadway, New York, N. Y., rec. by St. Claire Ransford-Gay and Frank L. McCartney.

No. 109. Henry Pollock, 649 Prospect St., E., Cleveland, Ohio, rec. by Eugene R. Selzer and Wm. B. Day.

No. 110. Lawrence N. Upjohn, M.D., 48 Vesey St., New York, N. Y., rec. by Turner F. Currens and Frank L. McCartney.

No. 111. George Simon, 135 William St., New York, N. Y., rec. by Turner F. Currens and Frank L. McCartney.

No. 112. Harry A. Stebbins, 145 Front St., New York, N. Y., rec. by Turner F. Currens and Frank L. McCartney.

No. 113. Edward Zink, 203 Fulton St., New York, N. C., rec. by Turner F. Currens and Frank L. McCartney.

No. 114. Dwight T. Scott, care of National Vaccine Co., Washington, D. C., rec. by Turner F. Currens and Frank L. McCartney.

No. 115. Clarence E. Wright, 435 W. 119th St., New York, N. Y., rec. by Ezra J. Kennedy and Frank L. McCartney.

No. 116. N. C. Partos, 160 Second Ave., New York, N. Y., rec. by Frank L. McCartney and George T. Riefflin.

No. 117. Alirio Diaz Guerra, M.D., 29 Polhemus Place, Brooklyn, N. Y., rec. by Frank L. McCartney and Turner F. Currens.

No. 118. Nestor Petillo. 57–59 Perry St., New York, N. Y., rec. by Turner F. Currens and Frank L. McCartney.

No. 119. Adolph Wolf Lerner, 556 Quincy St., Brooklyn, N. Y., rec. by Turner F. Currens and Frank L. McCartney.

No. 120. Franklin Black, 81 Maiden Lane, New York, N. Y., rec. by Turner F. Currens and Frank L. McCartney.

No. 121. Oscar Paul Mallard, Box 31, Llanerch, Pa., rec. by Charles H. La Wall and Joseph P. Remington.

No. 122. Leland A. Johnson, 4809 N. 24th St., Omaha, Neb., rec. by Howard C. Newton and I. Curtis Arledge.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 20.

Philadelphia, Pa., March 18, 1916.

To the Members of the Council:

Motions No. 39 (*Acceptance of Resignation of C. F. Nixon as a member of the Committee on Recipe Book and election of W. H. Glover as his successor*), *No.* 40 (*Appropriation to Editor Eberle for Travelling Expenses*) and *No.* 41 (*Election of Members; Applications Nos.* 101 *to* 122 *inclusive*) have each received a majority of affirmative votes.

The following communication has been received (March 11) from Alex. F. Peterson, of Missoula, Montana:

Members of the Council, American
Pharmaceutical Association:

Gentlemen:

Earnestly desiring to advance the science and art of Pharmacy and to improve the condition of pharmaceutical practice in Montana:

By stimulating research and the development of improved methods;

By diffusing scientific-technical knowledge;

By fostering sound pharmaceutical education;

By upholding the dignity of pharmacy and demonstrating to the public its importance, and the necessity, as a matter of public safety, of restricting pharmaceutical service to trained pharmacists;

By extending the field of usefulness of the pharmacist to the people;

By promoting the enforcement of due observance of established standards for the identity, purity, and strength of medicines;

By furthering the suppression of empiricism;

By aiding in the regulation of the use of dangerous and habit-forming drugs and in the protection of the public health;

By maintaining respect for ethical standards in the practice of pharmacy;

By promoting relations of comity and mutual respect between physicians and pharmacists; and in short, in all proper ways, to promote the true welfare of pharmacy and pharmacists.

We, the undersigned, realizing the importance and full significance of affiliation with the national organization, do petition the Council of the American Pharmaceutical Association to grant us permission to establish a branch of the Association in Montana, with headquarters at the School of Pharmacy of the University of Montana, Missoula, and be it further understood, that each person hereupon attaching his signature, promises to give his hearty support to the branch and to the National Association and to aid in conducting the branch in accordance with the rules and regulations of the American Pharmaceutical Association:

We, the undersigned members of the A. Ph. A. concur in the organization of a Montana Branch of the A. Ph. A., and pledge our support to help make the branch a success, and to build up the prestige and membership of the parent association, it being understood that the aims and objects of the branch association are the same as those outlined in the Constitution and By-laws of the A. Ph. A.

Louis Dreibelbis, Butte,
W. R. Montgomery, Butte,
Howard Rockefeller, Butte,
J. L. Kraker, Bozeman,
F. A. Schreiber, Livingston,
W. P. Porter, Belgrade,
Charles J. Chapple, Billings,
Fred A. Woehner, Great Falls,
R. L. Connell, Miles City,
H. H. Bateman, Missoula,
Sid J. Coffee, Missoula,
Alex. F. Peterson, Missoula,
Charles E. Mollet, Missoula,
C. P. Valentine,
D. H. Hauptman.

Do you favor granting the above petition? It will be known as *Motion No.* 42 (*Petition to form the Montana Branch, A. Ph. A.*).

J. A. Koch writes: "The appropriation for printing, postage and stationery for 1915 has been overdrawn, and at the request of Treasurer Whelpley, I wish to make a motion that an appropriation of $143.98 be made to cover overdraft for printing, postage and stationery for the year 1915."

The appropriation is approved by the Committee on Finance.

Do you favor the above motion? It will be known as *Motion No.* 43 (*Additional Appropriation of* $143.98 *for Printing, Postage and Stationery for* 1915).

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

FRENCH FIELD LABORATORIES.

According to the Schweizer Apotheker Zeitung, the French, as a part of their "Pharmacie Militaire," have organized two hundred mobile field laboratories for analytical and toxicological work at the front. One of these is attached to each Army Corps.

Each laboratory superintends the sanitation of the troops of its corps; to examine, and if necessary, to disinfect all drinking water; and to ensure the wholesomeness and quality of all rations. Quite unexpectedly, also, it has had to investigate the methods of combating attacks of poison gas, lachrymatory shells, and other chemical methods of offence employed by the enemy. The disinfection of trenches and of clothes also comes under its duties.

The chiefs of these laboratories have been recruited, according to their qualifications, from pharmacists, expert chemists, doctors or licentiates of science, and others. Conferences have been organized, where these chiefs receive suggestions on various matters and indications of processes or methods to be employed. Each laboratory is supplied with cases of apparatus and reagents, as simple and handy, yet as complete as possible. This phase of the organization is still being discussed and modified.

The position of the chiefs is one of great responsibility and demands considerable freedom of action. They will rank as officers and will probably be subordinate only to the orders of the chief of their division. They will be mounted. The assistants in these laboratories will rank as subordinate officers, and will be mainly recruited from the assistant pharmacists who have not yet received a higher step, or from students of pharmacy who have fulfilled a part of their curriculum.

THE TERCENTENARY OF SHAKESPEARE'S DEATH.

Xrayzer II in Chemist and Druggist says: "I am not going to claim for our great poet that, if not a professed pharmacist, he had as much right to the title as many who have borne it, though other claims, quite as extravagant, have been made for him, and volumes have been written on his medical lore. He has been held up as peculiar among his contemporaries in that, whereas other writers of the time 'draw their illustrations from what was then thought the only fount of poetic description, the pagan mythology,' he 'has recourse to natural philosophy, astronomy, medical science, and English jurisprudence.' I say nothing of the other subjects, but, after a fairly comprehensive reading in the Elizabethan drama, I make bold to affirm that if Shakespeare differs at all from his most eminent rivals in the matter of 'medical science,' it is in showing comparatively little of it. Wootton says in his 'Chronicles' that most of the drugs and pharmaceutical preparations named by him would be familiar to anybody acquainted with the literature of his day, and the same might with equal truth be said of his medical lore in general."

A SCHOLARSHIP IN CHEMICAL ENGINEERING.

Dr. Victor G. Bloede, of Baltimore, has provided a scholarship for assisting deserving young men to obtain education in the field of industrial chemistry or chemical engineering. The Chemists' Club of New York has supervision of the endowment, and inquiries should be addressed to them before June 1st. Such acts are commended and should stimulate endowments for pharmaceutical research by assisting colleges and associations in such promotions.

UNITED STATES TO MAKE MEDICAL SURVEY.

Plans for a coöperative survey of the nation's medical and scientific resources to be used by the War and Navy Departments in war times have been discussed by President Wilson and committees from medical and scientific organizations. The President approved the idea of an extensive investigation, saying that the information collected would be turned over to the military departments.

THE ENRICHT GASOLINE SUBSTITUTE.

The papers have given considerable space to the Enricht Gasoline Substitute. The fluid, perfected by the inventor, is supposed to decompose water into its constituents and the hydrogen made available at a very low price. One of the statements describes the liquid, capable of doing this, as of a greenish color, and when mixed in the proportion of four ounces to five gallons of water will produce motive power fully as powerful as gasoline.

Dr. C. F. Chandler gives his opinion in saying that the proposition is absolutely impossible, presenting the chemist's viewpoint. But now come the further reports that The Maxim Munitions Corporation has paid a large sum for the sole manufacturing rights.

THE SMITH-HUGHES BILL.

The Smith-Hughes Bill, now before Congress, provides for national grants for vocational education. Under its provisions, Federal grants are to be made to states for stimulating education in agriculture and in the trades and industries. The schools to be aided must be supported and controlled by the public; the instruction given in them must be of less than college grade; they must be designed to prepare boys and girls over 14 years of age for useful or profitable employment in agriculture; in the trades and industries and home economics.

Among the arguments advanced for the bill are the following: "An overwhelming public sentiment shows the need for vocational education in this country. The testimony in this behalf comes from every class of citizenship, from the educator, the manufacturer, the trades-unionist, the business man, the social worker, and the philanthropist.

"Vocational training is required to conserve and develop our national resources. These resources are decreasing. Successful competition with foreign countries in the future will depend upon our ability to 'sell more brains and less material.'"

BOOK NOTICES.

September, 1916, has been fixed as time when the United States Pharmacopœia IX and National Formulary IV will become official.

Digest of Comments on the Pharmacopœia of the United States of America and on the National Formulary for the Calendar Year Ending December 31, 1914. By Martin I. Wilbert. Bulletin No. 5, Hygienic Laboratory, 8vo, 508 pages. Washington, Government Printing Office.—A comment on this volume would be largely a repetition of the commendatory remarks made relative to previous issues. Like all of the preceding numbers, this volume contains much interesting matter; the object is kept well in mind and is replete with references to literature pertaining to pharmacy and materia medica. The completeness in this respect exhibits painstaking efforts, and while the references are of necessity brief, the abstracts give desired information relative to the scope and character of the original paper. It has been stated before that this work has been helpful to those charged with the revision of the Pharmacopœia and National Formulary, so the continuation of it will serve the next Committees, and also be welcomed by every pharmacist.

References are made to foreign pharmacopœias, the second supplement to the fourth edition of the Netherlands Pharmacopœia. The author concludes that, from a pharmaceutical point of view, the publication of the fifth edition of the British Pharmacopœia is the event of greatest importance to be recorded for the year 1914.

A point of special interest in connection with the appearance of this book is that it completes the adherence of the several powers signatory to the international treaty of 1906 for the unification of the pharmacopœial formulas for potent medicaments. This Pharmacopœia is also interesting in that the committee having the revision of the book in charge has endeavored to produce a British Pharmacopœia suitable for the whole Empire.

Semi-Annual Report on Essential Oils, Synthetic Perfumes, Etc. Published by Schimmel & Co. (Fritzsche Brothers, Miltitz. near Leipzig. London, New York. October, 1915.—These reports are always interesting and valuable, containing, as they do, authentic information relating to the scientific research in the domain of essential oils. There is less statistical matter in this number, due to conditions in Europe, but otherwise the present report follows the plan of previous issues. The publication reviews the definitions and standards of the new pharmacopœias for essential oils, and presents the results of investigations conducted in their own laboratories and is replete with reports of other investigators in this particular field.

The Testing of Glass Volumetric Apparatus, Bureau of Standards (Circular No. 9).—This publication contains specifications and tolerances for glass volumetric apparatus, such as burettes, cylindrical graduates, flasks, pipettes, Babcock test bottles, and specific gravity flasks for Portland cement, and also a short description of methods of test of this apparatus. The circular is of value to manufacturers and users of volumetric apparatus, and those interested in the subject may obtain a copy free by addressing a request to the Bureau of Standards, Washington, D. C.

Legal Status of the Maintenance of Uniform Resale Prices, by Charles L. Miller, and published by the American Fair Trade League.

In this pamphlet no effort has been made to set forth the advantages of uniform resale prices to the producer, jobber, retailer and consumer, nor has the economic aspect of price maintenance been discussed. It presents a concise statement of the present legal status of the maintenance of uniform resale prices, as shown by the decisions of the federal and state courts. To this is added a brief statement of the foreign law. The decisions of the state courts are not discussed in detail.

The purpose of the American Fair Trade League in having this brief prepared was not to aid members engaged in litigation with the government or with private litigants; nor to show how to get around the law. The League's intention in distributing it is antithetical to any such purposes. It is to give the members the advantage of having all the decisions on the subject collected by one who has made a special study of the problems of price maintenance, so that traders may know just what the law is and avoid breaking it unintentionally.

Hygienic Laboratory, Bulletin No. 102; 1, Digitalis Standardization; the physiological evaluation of fat-free digitalis and commercial digitalin. By George B. Roth. 2, Preliminary Observations of Metabolism in Pellagra. By Andrew Hunter, Maurice H. Givens, and Robert C. Lewis.

Department of Chemistry, University of Illinois. History, equipment, members of the faculty, students and announcement of courses for the year 1916–1917. Contains a list of the alumni of the department of chemistry by classes from 1872 to 1915 inclusive.

"Studies from the Research Laboratory," Parke, Davis & Co., Detroit; Reprint No. 81, "The Filterability of Bacillus Bronchisepticus: with an Argument for a Uniform Method of Filtration," by N. S. Ferry, Ph.B., M.D.; and Reprint No. 82, "The Pineal Gland in Relation to Somatic, Sexual and Mental Development" (second paper).

SOCIETIES AND COLLEGES.

APPOINTMENTS ON COMMITTEES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION AND SECTIONS.

Delegates to A. M. A. Section on Pharmacology, 1916: Joseph P. Remington, Chairman, Philadelphia, Pa. Henry H. Rusby, Newark, N. J. James H. Beal, Urbana, Ill. Martin I. Wilbert, Washington, D. C. Linwood A. Brown, Lexington, Ky. Elie H. LaPierre, Cambridge, Mass. Henry M. Whelpley, St. Louis, Mo. Reid Hund, Boston, Mass. Otto Raubenheimer, Brooklyn, N. Y. William B. Day, Chicago, Ill. Fred I. Lackenbach, San Francisco, Cal.

Delegates to the N. A. R. D., 1916: William C. Anderson, Chairman, Brooklyn, N. Y. Wilhelm Bodemann, Chicago, Ill. Lewis C. Hopp, Cleveland, Ohio.

Quality of Medicinal Products (Appointed by the Chairman of the Scientific Section): E. L. Patch, Chairman, Stoneham, Mass. Lyman F. Kebler, Washington, D. C. Henry H. Rusby, Newark, N. J. H. Engelhardt, Baltimore, Md.

Ebert Prize (Appointed by the Chairman of the Scientific Section): C. H. LaWall, Chairman, Philadelphia, Pa. Mrs. C. H. LaWall, Philadelphia, Pa. Robert P. Fischelis, Philadelphia, Pa.

Regulations for the Transportation of Drugs by Mail (Special Committee of the Section on Education and Legislation): Benj. L. Murray, Chairman, Rahway, N. J. Caswell A. Mayo, New York, N. Y. Henry P. Hynson, Baltimore, Md. James H. Beal, Urbana, Ill. John C. Wallace, New Castle, Pa. Martin I. Wilbert, Washington, D. C. C. W. Johnson, Seattle, Wash.

Survey of Teaching Institutions: Hugh Craig, Chairman, Chicago, Ill. J. H. Beal, Urbana, Ill. H. C. Christensen, Chicago, Ill.

THE ATLANTIC CITY MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

From indications which are interpreted to mean an unusually large attendance at the next annual meeting of the American Pharmaceutical Association at Atlantic City next September, the local Committee is planning for a record-breaker.

Reports coming into the office of the JOURNAL indicate that there will be delegations from Canada and Cuba, and even from the remoter portions of this country.

There is no place like Atlantic City, and its lure enthralls the hardened "globe-trotter" as well as the casual visitor. The headquarters for the meeting will be at the Chalfonte, one of the largest beach-front hotels, situated directly on the famous boardwalk. In addition to this there will be ample accommodations of a character to suit every taste and purse, from the most expensive and exclusive to the modest and comfortable smaller hotels at $2.00 per day and upwards.

On account of the first meeting of the Council convening on Labor Day, the local Committee suggests that the members of the Council arrange for reservations to cover their needs at a time considerably in advance of the meeting. This can be done by writing direct to the Hotel Chalfonte.

Atlantic City, during Labor Day week, is a very busy place, and hotel accommodations are not easy to obtain. It is particularly urged upon members to arrange for their quarters in advance. The headquarters of the Association will be Hotel Chalfonte, and the other hotels given in the list below are in close proximity to it. Should additional information be desired, it may be obtained by writing to The Bureau of Publicity, Atlantic City. The Bureau is prepared to furnish information about the hotels and rates, or any other matter pertaining to Atlantic City.

HOTELS.

Chalfonte, headquarters, one person in room, $4.00; two in room, $8.00; two in room with bath, $10. Haddon Hall, one person in room, $4, $5, $6, $7; one person in room, with bath, $9.00; two in room, $7, $8, $9, $10, $12, $14; two in room, with bath, $9, and up. Hotel Strand, two persons in room, $8 to $10; two persons in room, with bath, $12. Marlborough-Blenheim, one person, $6 per day, and up. Royal Palace, one person in room, $3.50 and $4; two persons in room, $7 and $8; one person in room, with bath, $5, $6, $7; two in room, with bath, $9, $10, $11, $12. Hotel Traymore, one person in room, $7, $8, $10, $11, $12; European plan, one person in room, $3, $4, $5, $7, $8, $9; two in room, $10 to $16; European plan, two in room, $5 to $10. Hotel Bothwell, $3 and $3.50 per day, running water. The Mullica, $2 and $3 per day; European plan, $1 per day. The Shoreham, $2 per day, two in room; $3 per day, with bath. The Grand Atlantic, $2.50 per day, two in room; $3 per day, single rooms. The Wiltshire, $3.50, $4, $5, $6, per day, single rooms; $2.50 to $5, two in room. The Seaside, $3.50 and $4, two in room.

Prices are American plan unless otherwise indicated.

The Local Committee has secured the Auditorium on the Steel Pier for the First General Session. This is only a short distance from the Chalfonte.

A handsome illustrated folder, published by the Atlantic City Publicity Bureau, will shortly be sent to the members. In the meantime, let every member resolve to combine pleasure and profit in a trip to the "Playground of the World" next September.

A BRANCH OF THE A. PH. A. FOR INDIANAPOLIS.

A meeting of the pharmacists of Indianapolis and vicinity was held April 10th for the purpose of organizing a Branch of the American Pharmaceutical Association.

There were thirty-five pharmacists present, and much enthusiasm prevailed, and the promises are excellent for an active Branch. Mr. F. A. Miller gave a very interesting and instructive talk on experimental work in growing medicinal plants.

The following have been chosen officers: President, Frank H. Carter, Indianapolis; vice-president, A. F. Sala, Winchester; secretary-treasurer, F. E. Bibbins, Indianapolis.

The members of the Executive Committee are: C. B. Jordan, Lafayette; August Kassulke, E. H. Niles, C. W. Watkins and A. D. Thorburn of Indianapolis.

MAY AND JUNE ASSOCIATION MEETINGS.

Arkansas Association of Pharmacists, at Little Rock, May 9–11. President, Booker Latimer, DeQueen; secretary, Miss Mary A. Fein, Little Rock.

Kansas Pharmaceutical Association, at Kansas City, May 16–18. President, W. J. Banks, Madison; secretary, C. Von Riesen, Marysville.

Louisiana Pharmaceutical Association, at Baton Rouge, May 16–17. President, F. A. Earhardt, New Orleans; secretary, J. T. Baltar, New Orleans.

Oklahoma Pharmaceutical Association, at Sulphur, May 16–18. President, W. S. Younkman, Tulsa; secretary, A. W. Woodmancy, Oklahoma City.

Texas Pharmaceutical Association, at Fort Worth, May 16–18. President, A. M. Fisher, San Antonio; secretary, W. H. Cousins, Dallas.

Manufacturing Perfumers' Association, at New York City, May 9–11. Secretary, W. J. Mueller, New York City.

Alabama Pharmaceutical Association, at Gadsden, June 21st. President, L. L. Scarborough, Anniston; secretary, W. E. Bingham, Tuscaloosa.

California Pharmaceutical Association, at Los Angeles, June 21–23. President, J. A. Sanford, Stockton; secretary, K. B. Bowerman, San Francisco.

Colorado Pharmaceutical Association, at Estes Park, June 20–23. President, H. B. SeCheverell, Denver; secretary, Charles J. Clayton, Denver.

Florida Pharmaceutical Association, at Tampa, June 21–22. President, M. M. Taylor, Tampa; secretary, J. H. Horton, Palatka.

Georgia Pharmaceutical Association, at Atlanta, June 6–7. President, S. E. Bayne, Macon; secretary, T. A. Cheatham, Macon.

Idaho Pharmaceutical Association, at Ketchum, June 19–21. President, W. F. Bee, Boise; secretary, D. S. Whitehead, Boise.

Illinois Pharmaceutical Association, at Springfield, June 6–8. President, Julius Riemenschneider, Chicago; secretary, W. B. Day, Chicago.

Indiana Pharmaceutical Association, at Indianapolis, June 20–22. President, Charles Genolin, Nashville; secretary, W. F. Werner, Indianapolis.

Iowa Pharmaceutical Association, at Iowa City, June 20–22. President, John Sutter, Burlington; secretary, Albert Falkenhainer, Algona.

Kentucky Pharmaceutical Association, at Olympia Springs, June 20–22. President, W. B. Tibbals, Somerset; secretary, J. W. Gayle, Frankfort.

Maine Pharmaceutical Association, at Augusta, June 28–30. President, D. T. Dougherty, Bath; secretary, M. L. Porter, Danforth.

Michigan Pharmaceutical Association, at Detroit, June 20–22. President, D. H. Jongejan, Grand Rapids; secretary, D. D. Allen, Fremont.

Mississippi Pharmaceutical Association, at Meridian, June 13–14. President, H. M. Faser, Oxford; secretary, Miss Flora Scarborough, Laurel.

Missouri Pharmaceutical Association, at Excelsior Springs, June 13–16. President, J. E. Koppenbrink, Higginsville; secretary, H. M. Whelpley, St. Louis.

Nebraska Pharmaceutical Association, at Hastings, June 15–16. President, K. L. Kreisinger, Fremont; secretary, J. G. McBride, University Place.

New Hampshire Pharmaceutical Association, at Newcastle, June 27–28. President, B. T. Porter, Ashland; secretary, Eugene Sullivan, Concord.

New York Pharmaceutical Association, at Richfield Springs, third week in June. President, A. S. Wardle, Hudson; secretary, E. S. Dawson, Syracuse.

North Carolina Pharmaceutical Association, at Wrightsville, June 20–22. President, E. L. Tarkenton, Wilson; secretary, J. G. Beard, Chapel Hill.

Pennsylvania Pharmaceutical Association, at Reading, June 20–22. President, T. Campbell, Philadelphia; secretary, D. J. Reese, Philadelphia.

Utah Pharmaceutical Association, at Logan, June 27–28. President, R. S. McAllister, Logu; secretary; C. VanDyke, Salt Lake City.

Vermont Pharmaceutical Association, at St. Albans, June 26–28. President, C. H. Skinner, Windsor; secretary, W. E. Terrill, Montpelier.

Virginia Pharmaceutical Association, at Mountain Lake, third Tuesday in June.

President J. F. Bauer, Richmond; secretary, E. L. Brandis, Richmond.

West Virginia Pharmaceutical Association, at Webster Springs, second week in June. President, B. E. Downs, Welch; secretary, C. H. Rogers, Morgantown.

Washington State Pharmaceutical Association, on board the Steamship Governor, during three-day cruise on Puget Sound, June 19–22. President, C. W. Johnson, Seattle; secretary, A. W. Linton, Seattle.

Flavoring Extract Manufacturers' Association, at Atlantic City, June 28–30.

National Association of Drug Clerks, at Chicago, June 1–3. Secretary, P. A. Mandabach, Chicago.

NEW YORK COUNTY PHARMACEUTICAL SOCIETY.

The New York County Pharmaceutical Society at its recent meeting elected the following officers: President, Bernard Colle; vice-president, Herman Walter; treasurer, Thomas Latham; financial secretary, Michael Halpern; recording secretary, A. Arthur Philo. After the meeting the Society held its sixth annual banquet and entertainment at Reisenweber's. Nearly two hundred members and their friends were present. Among those present, who made short addresses, were Caswell A. Mayo, Dr. William C. Anderson, Dr. Joseph Diner, Dr. J. Hostmann, Robert Lehman, Dr. Schreier, of the Yorkville Medical Society; Emil Roller, who presented the society with a photograph of the late Dr. Hermann Hager; Joseph Weinstein, and Joseph Weil.

The New York Branch of the American Pharmaceutical Association now has nearly two hundred members.

SPRING MEETING OF THE AMERICAN CHEMICAL SOCIETY.

The Fifty-second Meeting of the American Chemical Society was held at the University of Illinois, Urbana-Champaign, April 17th to 21st. The meeting was the largest to date, the total registration being 728 (570 members and 158 guests).

The regular opening session was held in the University Auditorium Tuesday morning. Professor W. A. Noyes introduced President Edmund Janes James, who welcomed the Society in the name of the University.

The meetings of the Divisions were held in the various lecture rooms of the Chemistry Building. All the Divisions offered programs of exceptional interest. The public lectures, given complimentary to the people of Urbana-Champaign by Professor Charles L. Parsons and Doctor Curtis F. Burnam, on the production of radium and its use in the treatment of cancer, were well attended. The lectures were well illustrated by specimens, models and moving pictures.

On Wednesday afternoon the new Chemistry Building of the University of Illinois was dedicated, the exercises being held in the auditorium.

THE MEDICO-CHIRURGICAL COLLEGE DEPARTMENT OF PHARMACY.

The senior class of the Medico-Chirurgical College Department of Pharmacy, faculty and friends were entertained by the Alumni Association, May 3rd, at the Adelphia. A musical program, interspersed with addresses, was rendered. The several departments of the institution were represented by speakers.

Light refreshments were served and terminated the delightful evening.

THE AMERICAN DRUGGISTS' FIRE INSURANCE COMPANY ANNIVERSARY AND MEETING OF OHIO VALLEY DRUGGISTS' ASSOCIATION.

The American Druggists' Fire Insurance Company has prepared an elaborate program for its State agents' convention and anniversary meeting to be held in Cincinnati during the week of May 22nd. The topics for discussion include nearly every possible phase of retail drug store insurance and the proper adjustment of retail drug store fire losses. On May 25th the visitors will be entertained by the Ohio Valley Druggists' Association, the anniversary celebration closing in the evening with a banquet. A large number of representative men in pharmacy have been invited to be present on that occasion.

A COURSE IN PHYSIOLOGICAL ASSAY METHODS.

The Harvard Graduate School of Medicine has provided for a summer course in Physiological Assay Methods. The session will be held during the month of July, and this notice is given under the presumption that the information will be welcomed by some of the members of the American Pharmaceutical Association.

ILLINOIS PHARMACEUTICAL ASSOCIATION.

Three hundred new members have been added to the Illinois Pharmaceutical Association as a result of the campaign carried on by the Membership Committee of the Illinois Pharmaceutical Association and Illinois Pharmaceutical Travelers' Association during the winter. Several committeemen have not yet reported, and it is expected that the list will be substantially increased by the time the associations meet in Springfield, June 6th, 7th, and 8th.

The interest shown by the druggists throughout the state and the large number who have joined the Association indicate a great awakening of enthusiasm in regard to the Association affairs and give promise of a big attendance at the coming convention. Over nine hundred members have already paid their dues for 1916, affording the largest income that the Association has ever enjoyed and providing the means for carrying on a vigorous legislative campaign next year, the plans for which will be fully discussed at the convention. This makes it imperative that every druggist in the State plan to attend this convention and take part in its important deliberations.

Among the speakers of note who will address the convention are Harry B. Mason, of Detroit, who will speak on "How to Make the Drug Store Pay Better," and Dr. J. H. Beal, who will discuss "Narcotic Legislation from the Retail Druggists' Standpoint."

The session of both associations will be held in the Illinois State Arsenal and a big feature will be the exhibit, as between forty-five and fifty manufacturers have engaged exhibit space and will display and dispense their products.

The Illinois Traction Company has made a special rate of one and one-third fare for the round trip on the coupon system, receipt to be taken on the going trip. The lines of this company afford excellent transportation to druggists residing in the central part of the State.

For the convenience of Chicago members, the Chicago and Alton will run a special train from Chicago, leaving the Union Station Tuesday morning, June 6th, at nine o'clock. An excellent dinner will be served on the train and every attention will be given to the comfort and pleasure of the travellers.

The entertainment committee of the Illinois Pharmaceutical Travelers' Association has arranged a very attractive program. The President's Reception and Annual Ball will be held on Tuesday evening, June 6th, at the Arsenal. Automobile rides around the city and special entertainment for the visiting ladies will be provided for Wednesday and Thursday by the Ladies' Auxiliary of the Sangamon County Retail Druggists' Association. Wednesday evening a banquet and entertainment will be given at the St. Nicholas Hotel for all who register at the convention. The Headquarters will be at the St. Nicholas Hotel and reservations should be made early, addressing communications to R. H. Smith, Chairman of the Hotel Committee, 160 N. 5th Ave., Chicago, Ill.

NEW YORK COLLEGE OF PHARMACY.

Since the purchase of a handsome showcase by the Library over a year ago, there has been an attempt to keep a collection of old books, illustrative of different phases of historical pharmacy, always on exhibition.

At present, attention is directed to two of the most celebrated antidotes to poisons and nostrums of the middle ages, Mithridatium and Theriaca (English Treacle).

No effort has been spared to make this exhibition a complete survey of the subject.

Mr. Horatio N. Fraser has loaned to the College, for exhibition purposes, four very old and beautifully-decorated stock jars. These are on display in the Library and are well worth a visit.

All interested are most cordially invited to the Library, which is open to visitors on week days from 10 A.M. to 1 P.M., and from 3 P.M. to 5 P.M., except Saturdays.

Upon invitation from the Chemical Society of the College of the City of New York, Professor Curt P. Wimmer delivered a lecture before that Society on "Our Present Knowledge of Alkaloidal Chemistry," on Thursday, April 6th.

Emeritus Professor Coblentz, on Wednesday evening, April 12th, delivered a lecture on "The Effect of the War on the Price of Chemicals" before the Pi Lambda Phi Fraternity at Havemeyer Hall.

ALUMNI ASSOCIATION OF THE UNIVERSITY OF ILLINOIS.

The annual business meeting of the Alumni Association of the University of Illinois and the election of officers was held at the School on Tuesday evening, March 21st. The fol-

lowing officers were elected: President, Leo L. Mrazek, '97; 1st vice-president, Herman Fry, '87; 2nd vice-president, Mrs. Anna Eicher, '09; 3rd vice-president, C. C. Orr, '14; Historian, Miss Charlotte Stimson, '00; Secretary, Treasurer, B. L. Eicher, '11.

The Treasurer's report showed a balance in the general fund of $714.32 and in the Alumni Ebert Fund of $633.68.

Arrangements for the annual banquet, which is to be held on Wednesday evening, April 26th, were discussed, and the Secretary was authorized to make arrangements for the banquet. Later, the Secretary announced that the banquet would be held in the Florentine room of the Congress Hotel.

Henry W. Colson presented a plan to adopt a uniform alumni and class pin to be used for the senior classes, as well as by the alumni of the school. A committee was appointed to select a suitable pin and to report to the Executive Committee before the opening of the next school year.

ALBANY COLLEGE OF PHARMACY.

The thirty-fifth commencement exercises of the Albany College of Pharmacy were held in the auditorium of the State Education Building, in Albany, Tuesday afternoon, April 25th. Dean Willis G. Tucker presided and degree of graduate of pharmacy was conferred upon forty-seven graduates by Dr. Charles Alexander Richmond, chancellor of the State University.

NORTHWESTERN UNIVERSITY.

The Alumni Association of Northwestern University School of Pharmacy gave a banquet on April 17th at Hotel Sherman, Chicago, in honor of the graduating class of 1916, who were the guests. The toastmaster was C. M. Turnquist, '96, and the speaker of the evening was James W. Morrisson, of the Morrisson-Fuller Co., who spoke on "Distribution and the Retail Drug Trade." Other speakers were Prof. R. H. Gault, of the department of Psychology and Liberal Arts; T. W. Rosenburg, president of the senior class; Dr. J. H. Long, dean of the school of history, and J. L. Clay, secretary and treasurer of the alumni association.

Prof. M. A. Miner, who has been connected with the School of Pharmacy for nearly thirty years, was presented with a "trip to California," the presentation speech being made by Dr. Harry Kahn.

CHICAGO COLLEGE OF PHARMACY.

The commencement exercises of the Chicago College of Pharmacy were held April 26th. The degree of Graduate in Pharmacy was given to thirty-nine; certificates were given to five special students and to thirteen members of the class of 1916, who lacked the required age or experience. The prizes were awarded as follows: Andrew Shearer prize, to Leo Ayres; Herman Fry prize, to Elmer Erickson; William Gray prize, to William Beckman; faculty prizes—pharmacy, to R. R. Weaver; materia medica and pharmacognosy, to R. L. Greenwood; chemistry, to F. W. Graham. The address to the graduates was delivered by Dean F. J. Wulling of the University of Minnesota school of pharmacy, his theme being "Character Building." Dr. David Kinley, vice-president of the University of Illinois, conferred the degrees, with a brief address in which a deal of practical advice for every-day druggists was embodied. In the evening of the same day the alumni association of the school tendered a banquet and reception to the members of the graduating class at the Congress Hotel.

THE PHARMACIST AND THE LAW.

EXAGGERATED STATEMENTS IN ADVERTISING FRAUDULENT.

The decision of the Supreme Court of the United States that advertisers are guilty of fraud if they exaggerate their wares in their advertisements is a notice of danger. It should make advertisers "stop and look and listen," lest their enemies hale them into court and call on them to prove the truth of their advertisement.

Human nature is not ignored in this decision. Mere puffing of wares, even if warmly done, is not forbidden so long as the seller does not assign qualities to the article that it does not possess. In other words, he must not try to deceive the buyer. An honest advertiser should have nothing to fear under this decision, unless he allows his imagination to run riot and gives assurances that, as understood by the buyer, go beyond the bounds of truth.

Advertisements that deceive the buyer will not be permitted in the United States mail, if recognized. So far as this shall prevent the exploiting of wild and worthless schemes, it is a decision to be welcomed. There is danger, however, that evil-disposed persons may see in it an opportunity to make trouble for honest advertisers, and, therefore, it may call for greater caution and restraint in advertising than sanguine and enterprising advertisers have heretofore found necessary.

OPPONENTS OF PRICE MAINTENANCE MEASURES THINK THERE WILL BE CONSIDERATION BY CONGRESS.

E. L. Howe, Executive Secretary of the National Retail Dry Goods Association, has made the statement that he had received definite information, from an entirely trustworthy source, to the effect that the price maintenance bills, now before Congress, were likely to receive early consideration. He gave it as his view that, unless the opponents of price maintenance took a stronger stand than they had yet done, one of the bills would probably become law.

GUARANTY LEGEND LABELS MAY BE USED UNTIL 1918.

As a matter of a hearing and investigation, the U. S. Department of Agriculture has extended the time for using labels bearing the Guarantee Legend. It is, of course, understood that labels should no longer be printed with the statement; the ruling is based upon the prior order of discontinuance, and, therefore, the use of such labels is only lawful if they were printed prior to May 5, 1914. The decision follows: "It has been made to appear that (1) dealers in food and drugs have on hand a great many labels and containers printed or marked prior to the date of Food Inspection Decision 153 (May 5, 1914); (2) these labels and containers bear the legend "Guaranteed by (name of guarantor) under the Food and Drugs Act, June, 30, 1906," or a serial number issued by the United States Department of Agriculture, or both; (3) these labels and containers, when so printed or marked, complied with the Rules and Regulations for the Enforcement of the Food and Drugs Act in effect at the time; and (4) great financial loss will result to such dealers, through their inability to use these labels and containers, if Regulation 9, as amended by Food Inspection Decisions 153 and 155, be enforced beginning on May 1, 1916.

"Accordingly, proceedings under the Food and Drugs Act, based on the shipment in interstate or foreign commerce, or the sale in the District of Columbia or the Territories, prior to May 1, 1918, of any article of food or drugs, will not be instituted solely on account of the fact that the label thereon or the container thereof bears the legend 'Guaranteed by (name of guarantor) under the Food and Drugs Act, June 30, 1906,' or a serial number issued by the United States Department of Agriculture, or both, upon it being established that such label or container was so printed or marked prior to May 5, 1914."

ORDERS FOR PREPARATIONS CONTAINING NARCOTICS NEED NOT BEAR STATEMENT OF AMOUNT OF NARCOTIC CONTAINED.

Treasury Decision 2,323 has been issued pursuant to hearings given representatives of the drug trade in which the claim was made that it would be practically impossible for druggists placing orders for preparations and remedies containing the narcotic drugs in question to state what amount of the proscribed drugs was contained in a particular order.

The Decision follows: "The ruling contained in Treasury Decision 2,292, amending Treasury Decision 2,244, requiring the narcotic content of preparations and remedies in grains to the fluid or avoirdupois ounce, or the quantity of narcotic drug in grains or fractions thereof, contained in a tablet or pill, to be indicated on official narcotic order forms, is hereby revoked, to take effect immediately.

"Hereafter the name of the preparation, the quantity in ounces, if in liquid form, or if in tablet, pill, ampule or suppository form, the units or total thereof, and the name of the particular narcotic drug contained in such preparations, tablets, pills, ampules or suppositories, need only be entered on these order forms."

The new plan is to be given a thorough test by government officials and if found not workable some other plan must be devised. Representatives of the drug trade have offered to place in the hands of the government officials full lists of the various preparations and remedies containing the proscribed drugs in the non-excepted quantities, so inspectors will have no difficulty in computing the quantities of narcotic drugs contained in each order.

MARYLAND PROVIDES FOR PHARMACEUTICAL USES OF ALCOHOL.

A law for correcting the State-wide prohibition bill of Maryland has been signed by the Governor, and permits the use of alcohol for certain purposes. It reads: "An act to regulate the manufacture, purchase, sale or dealing in medicinal, pharmaceutical, scientific, sacramental, mechanical, culinary, or toilet preparations.

"Section 1. Be it enacted by the General Assembly of Maryland that it shall not be unlawful to manufacture, buy, or deal in any medicinal, pharmaceutical, scientific, sacramental, mechanical, culinary or toilet preparation which may contain such percentage of alcohol as may be necessary to hold the contents in solution, preserve the preparation or keep it from freezing; provided, however, that no such preparation shall be manufactured, bought, sold or dealt in, for use as a beverage or intoxicant.

"Section 2. And be it further enacted, that any and all laws in conflict therewith are, to the extent of such conflict, hereby repealed.

"Section 3. And be it enacted that this act shall take effect from June 1."

PARK COMPANY'S DAMAGE SUIT FORMALLY DISMISSED IN NEW YORK COURT.

Though it is still considered possible, if not probable, that the John D. Park & Son Company, of Cincinnati, will carry its long-drawn-out injunction and damage suit against numerous prominent wholesale druggists to the United States Circuit Court of Appeals, this case has now been thoroughly adjudicated and wound up, as far as the United States District Court in New York is concerned. By a decision made by Judge Julius M. Mayer, in the District Court, an amended complaint of the Park Company has been held to be barred by the defendants' plea that the statute of limitations has operated against that concern's claim for damages sustained by alleged "conspiracy and combinations in restraint of trade" acts on the part of the defendants from 1889 to 1902.

PRICE MAINTENANCE VERDICT.

The jury sitting in the case of Frey & Son, Inc., wholesale grocers of Baltimore, against the Welch Grape Juice Company, an action for damages on the ground that the Welch Company had refused to let the grocery company have goods because the grocery company had declined to sign an agreement to keep up the producers' price, brought in a verdict for the Welch Company on April 27th in the United States Court. Frey & Son, Inc., had sued for $20,000, punitive damages being put at four times this sum.

CHARLES E. HIRES COMPANY SECURES VERDICTS.

Several suits, charging substitution in sales and dispensing of substitute products for Hires' Root Beer, have been decided in favor of Charles E. Hires Company, and the defendants adjudged guilty.

WAR DEPARTMENT.

List of changes of station covering period ending April 30, 1916, in the cases of Sergeants First Class and Sergeants, Hospital Corps, U. S. Army.

SERGEANTS FIRST CLASS.

Rush O. Day, from Ft. D. A. Russell, to the Southern Department.

James Sweeney, from Ft. Sam Houston, to Ft. Bliss.

William J. Murphy, from the U. S. Disciplinary Barracks, Alcatraz, to Ft. Bliss.

Thomas G. Bristow, from Field Hospital No. 2, to the U. S. Disciplinary Barracks, Alcatraz, Cal.

William K. Lyda, from Ft. Lawton, to Ft. Bliss.

Herbert Repp, from the Letterman General Hospital, Cal., to Ft. Bliss.

James A. Tremblay, from West Point, N. Y., to Ft. Sam Houston.

Lyell R. Stewart, from Ft. Miley, to Ft. Bliss.

Alexander Berkowitz, from the Philippines Department, to the Letterman General Hospital.

Jesse H. Mael, from the Philippines Department, to Ft. Miley.

George P. Chase, from the Philippines Department, to Ft. Lawton.

James F. Hamner, from Ft. McDowell, to Alaska, on the June transport.

George J. Shull, from Ft. Thomas, to Alaska, on the June transport.

Earl F. Greene, from Jackson Barracks, to Alaska, on the June transport.

Albert Metze, from the Attending Surgeons' Office, Washington, D. C., to Alaska, on the June transport.

Paul Yeatman, from Alaska, to Ft. Lawton, for assignment, in July.

Thomas E. Albertson, from Alaska, to Ft. Lawton, for assignment, in July.

John A. Watfield, from Alaska, to Ft. Lawton, for assignment, in July.

Walter W. Tobin, from Alaska, to Ft. Lawton, for assignment, in July.

Forest E. White, from Alaska, to Ft. Lawton, for assignment, in July.

Ray Westra, from Ft. Bayard, to the Letterman General Hospital.

SERGEANTS.

John E. Oberg, from the Presidio of San Francisco, Cal., to Ft. Worden.

James J. Johnson, from Ft. Wadsworth, to Ft. Hamilton.

Edwin R. Arndt, from Ft. George Wright, to the Presidio of Monterey, Cal.

Adolf Nelson, from Ft. Wadsworth, to the Southern Department, for assignment.

Thomas O. Williams, from the Hawaiian Department, to Ft. Yellowstone.

Albert F. Dowler, from the Philippines Department, to the Letterman General Hospital.

Ralph B. Kopenhefer, from Ft. Ethan Allen, to the Southern Department, for assignment.

Brent A. Lemert, from Ft. Ethan Allen, to the Southern Department, for assignment.

Paul J. Schreiner, from Ft. Totten, to the Southern Department, for assignment.

George D. Coleman, from Ft. Andrews, to the Southern Department, for assignment.

Horace J. Caterer, from the U. S. M. P. "Mills," to Ft. Jay.

UNITED STATES PUBLIC HEALTH SERVICE.

Pharmacist T. V. O'Gorman, directed to proceed to Port Townsend, Washington, for duty at Quarantine Station.
April 21, 1916.

Pharmacist F. J. Hurley, relieved at Marine Hospital, San Francisco, California, and proceed to Angel Island Quarantine Station.
April 19, 1916.

Pharmacist R. F. Troxler, relieved at the Angel Island Quarantine Station, and proceed to the Marine Hospital, San Francisco, California. April 19, 1916.

Scientific Assistant W. J. Lauck, proceed to Spartanburg, S. C., for duty in investigations of pellagra. April 20, 1916.

Sanitary Engineer Walter G. Stromquist, proceed to Cincinnati for duty in studies of stream pollution. April 19, 1916.

Sanitary Engineer Herbert H. Wagenhals, proceed to Cincinnati for duty in studies of stream pollution. April 19, 1916.

Pharmacist F. L. Brown, granted 1 day's leave of absence, April 3, 1916.
April 1, 1916.

Pharmacist J. V. La Grange, granted 2 days' leave of absence, March 27 and 31, 1916.
March 27, 1916.

RUPERT BLUE, *Surgeon General.*

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly. The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

ARMSTRONG, THOS. C.
From 80 River St., Cambridge, Mass.
To U. S. Marine Hospital, Chelsea, Mass.

CZYZEWSKI, B. J.
From 1102 Washington Ave., Braddock, Pa.
To 1100 Washington Ave., Braddock, Pa.

Kolbe, E. B.
From 671 Junction Ave., Detroit, Mich.
To 681 Dix Ave., Detroit, Mich.

Noaks, Richard S.
From National Cemetery, Va.
To Hopewell, Va., Box 661.

Kauffman, Geo. B.
From 235 N. High St., Columbus, Ohio.
To Care of The Kauffman Lattimer Co., Columbus, Ohio.

Smith, Guy L.
From Front St., Douglas, Alaska.
To Guy's Drug Store, Opposite Post Office, Douglas, Alaska.

Bradt, F. T.
From 171 Blaine Ave., Detroit, Mich.
To 399 Vinewood Ave., Detroit, Mich.

Churgin, Jos. S.
From 210th St. and Gunn Hill Road, New York, N. Y.
To 1646 Park Place, Brooklyn, N. Y.

Simmel, Martin.
From Care of Depot Q. M. Corps, Philadelphia, Pa.
To Ft. Bayard, New Mexico.

Lewis, Henry.
From 509 State St., Madison, Wis.
To State and Gilman Sts., Madison, Wis.

Hart, William F.
From 11 S. Arlington Ave., East Orange N. J.
To 485 Joseville Ave., Newark, N. J.

Mueller, Otto E.
From 1832 Baxter Ave., Louisville, Ky.
To 970 Baxter Ave., Louisville, Ky.

Miller, A. N.
From 306 E. 165th St., New York, N. Y.
To Residence unknown.

Raycraft, J. W.
From 900 E. 4th St., Alton, Ill.
To Residence unknown.

Von Koss, J. L.
From 32 Adams Ave. W., Detroit, Mich.
To Residence unknown.

Koerber, Chas. J.
From Care of Heading Drug Store, Lewistown, Pa.
To 2621 Girard Ave., Philadelphia, Pa.

Herron, Chas. S.
(Reinstated) and his address is Care of Burrough Bros. Manfg. Co., Baltimore, Md.

Smith, Geo. W.
From Honolulu Territory, Hawaii.
To P. O. Box 426, Honolulu Territory, Hawaii.

Hanlon, Wm. T.
From Harlingen, Texas.
To Residence unknown.

Roe, Roy C.
From 709 S. Winchester Ave., Chicago, Ill.
To Residence unknown.

Trainer, Frank.
From Douglas, Ariz.
To Residence unknown.

Grassly, Chas. W.
From 802 W. 12th St., Chicago, Ill.
To 4601 N. Western Ave., cor. Wilson, Chicago, Ill.

BREWERS' YEAST AS A SOURCE OF VITAMINES.

A recent report by Mr. Atherton Seidell, of the Hygienic Laboratory, U. S. Public Health Service, describes a successful process of obtaining a cheap and stable vitamine, in concentrated form, for use in treating nutritional deficiency diseases, such as beriberi, pellagra, etc. The preparation is obtained from brewers' yeast, which is pressed, autolyzed by keeping at a temperature of about 100° F. for 48 hours, and filtered through paper, the filtrate then being treated with Lloyd's colloidal hydrous aluminium silicate reagent. Finally, a solid residue is obtained by siphoning, desiccation, etc. The preparation has been given to pigeons in doses of 0.05 Gm. on alternate days, and the pigeons were thus enabled to retain normal health and weight on an exclusive diet of polished rice, which would otherwise produce fatal polyneuritis. Completely paralyzed pigeons have also been promptly cured by this new remedial agent.

A NEW ANTISEPTIC.

Some notes on a new antiseptic were contained in a recent issue of the *British Medical Journal,* that has been named chloramine. Therein it is stated that chloramine is most conveniently produced by adding sodium hypochlorite to toluene sulphonamide, and is a colorless, crystalline substance, which, in the solid form, is quite stable. When dissolved in water it can be kept unchanged for several months. It is without corrosive action, is non-toxic and does not coagulate protein. Its germicidal action is, according to the same authority, molecule for molecule, about four times that of sodium hypochlorite, and it is less irritating and can be used in concentration five or ten times as great.

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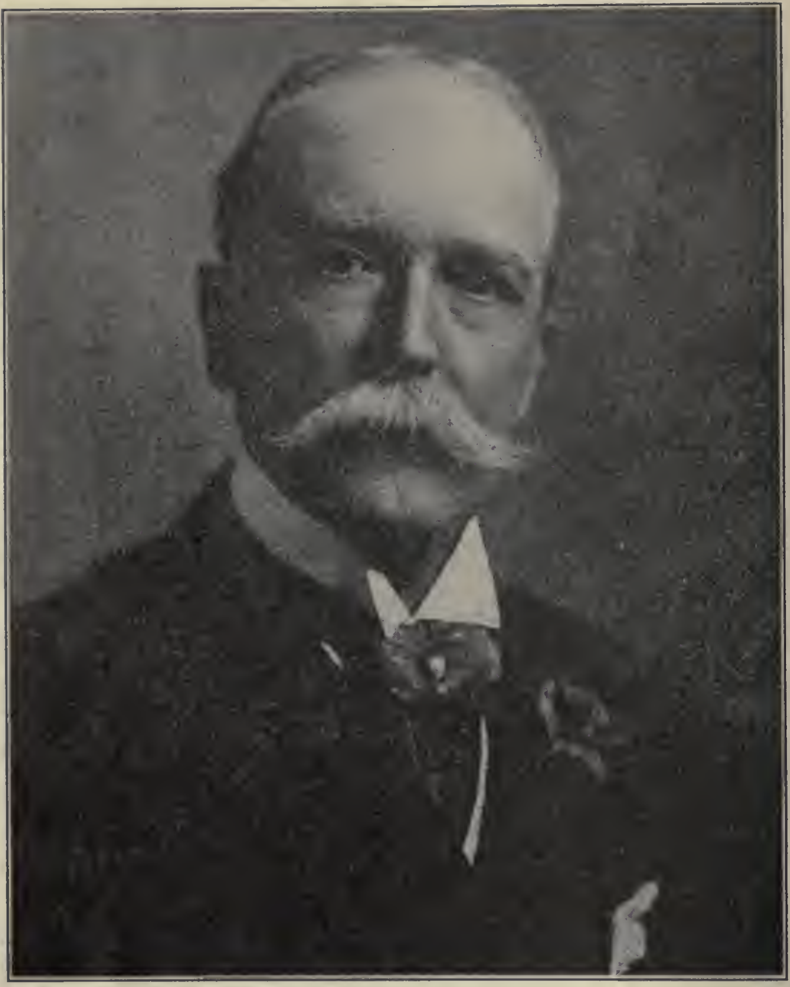
1912	1914	1915	1916
April	August	January	January
May	September		February
	October		March
			April

SAMUEL W. FAIRCHILD, Ph.M., M.Sc.

Founder of a Pharmaceutical Scholarship in the United States entrusted to
the American Pharmaceutical Association, National Association
of Boards of Pharmacy, and American Conference
of Pharmaceutical Faculties.



SAMUEL W. FAIRCHILD

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. V JUNE, 1916 NO. 6

SAMUEL W. FAIRCHILD, Ph.M., M.Sc.

Samuel W. Fairchild, of New York, is one of the most prominent and interesting figures in American pharmacy. He is a man of most attractive personality, handsome, distinguished, suave, courteous, and polished; he has hosts of friends and admirers. The dinner given to him by the members of the Union League Club on the occasion of his reëlection to the presidency some years ago brought together one of the most distinguished companies ever assembled to do honor to a private citizen.

Beginning life as a clerk in a retail drug store, he has amassed a fortune and has won for himself a high place in the social, scientific, and financial world. Under his presidency the New York College of Pharmacy left the old building on Twenty-third Street and erected a handsome structure on Sixty-eighth Street at a cost of $125,000, entering upon a new era of prosperity. Mr. Fairchild was reëlected president of the Union League Club of New York three times, a most unusual honor to be bestowed by that select and distinguished club upon any president. He founded the Fairchild pharmaceutical scholarship in Great Britain and Ireland in 1904, and at the San Francisco meeting of the American Pharmaceutical Association last year announced the foundation of a scholarship in the United States to the value of $300 annually. Mr. Fairchild is a veteran of the Seventh Regiment of the National Guard of the State of New York, a member of the Sons of the Revolution, of the Pilgrims, of the New England Society of New York, of the Metropolitan Museum of Art, of many benevolent societies, and is connected with many banks and financial institutions in an executive and financial capacity. He was one of the incorporators of the Bronx Botanical Gardens, and has served on many committees and commissions appointed by the city authorities to aid in planning celebrations on special occasions. He was one of the commissioners from New York at the Columbian Exposition in Chicago in 1893, and is a member of many clubs and societies in Europe, as well as in the United States. He received the honorary degree of Master of Pharmacy from the Philadelphia College of Pharmacy in 1908 and of Master of Science from Columbia University in 1911.

Mr. Fairchild is married and has three daughters and two sons, one of whom, Mr. Benjamin Tappen Fairchild, a graduate of Yale University, is associated with him in business.

Caswell A. Mayo.

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

THE GRADUATES OF PHARMACY.

DURING the last few weeks, perhaps a thousand or more graduates in pharmacy have been given their certificates of proficiency from the schools which they attended during the past two years or more. Next, the boards of pharmacy will pass on the fitness of these candidates for pharmaceutical practice, and then they accept positions in stores or go into business for themselves.

What energies are active in shaping pharmacy? Are pharmacists, physicians, manufacturers or patrons, leading influences, all of them separately, jointly, or by chance? Are the environments of pharmacy changing? How are they being constructed—according to method and forethought, or without concern and direction?

The foregoing are some of the thoughts that possibly occupied the minds of those who addressed the graduates, soliciting them not to be absorbed so intently in their own success as to be unmindful of a responsibility to pharmacy and a duty to the institutions which provided opportunities for pharmaceutical education. Unselfish desire to be of service to others does not always enter into calculations, though really it is the greatest and highest quality of success.

Pharmacy may be regarded as a composite votary, and the usefulness depends upon all who are engaged in and for it; more than that, for human consciousness creates ideals and the past has labored for the possibilities we have to-day. The knowledge of the past will profit us little unless we acquire wisdom along with it, so that proper use of knowledge may be made and applied for our improvement.

> "Knowledge and Wisdom, far from being one,
> Have ofttimes no connection. Knowledge dwells
> In heads replete with thoughts of other men;
> Wisdom, in minds attentive to their own.
> Knowledge, a rude, unprofitable mass,
> The mere materials with which Wisdom builds,
> Till smoothed and squared and fitted to its place,
> Does but encumber whom it seems to enrich.
> Knowledge is proud that he has learned so much.
> Wisdom is humble that he knows no more."

The advice to the graduates is prompted, of course, by the experiences of a lifetime, because there is the realization that we cannot back-track, but only can go forward to "fill the unforgiving minute" of the future; that self of ours, constantly being left behind us, has heard a great deal of unheeded advice from its seniors, just as our recent graduates listened to the messages of their seniors. They go forth with ambitions, just as the preceding generations, for imagination is the first essential to success.

The meaning of "commencement" in connection with the closing formalities of schools and colleges is not always fully comprehended by the graduates until they are called upon to show their capabilities. Then it dawns upon them that initiative rests with them; now, "yes" and "no" must be their own saying. In the school it was largely a higher or lower mark, now some achieve success or see others scaling the heights they expected to reach. They now will realize, if they did not before, that their acquired knowledge is not the end, but the commencement, the means that prepared them for entrance into the great whirlpool of human activity wherein they will be tried, their personality developed, their capabilities and courage put to the test. Experience will teach them that the successful man is seldom, if ever, the favorite of luck, but he achieved because he persisted and went hard and fast after all he got; many would share his successes but flinch when they learn the price he paid. Success requires both mental and physical energy, and the quality is the outward evidence of inward hopes and ideals.

Although there are voices to the contrary, pharmacy comprehends to-day a broader ground and more inviting field than ever before; it is also safe to say that pharmacy is, year by year, claiming a better class of students. That there is discontent, no one disputes, but if there was undisturbed satisfaction, there would be no progress. The point is, we do not compare our present condition with the past but with an ideal state, created by consciousness of the deficiencies of pharmacy. It is this kind of dissatisfaction which stimulates progress.

The opportunities for pharmacists are becoming greater because there will be more of a demand for American products, and so we may expect pharmacy students to enter related fields of activity that contribute, in one way or another, to the very complex requirements of the retail pharmacy. But the retail pharmacy itself will continue to employ the greater number. The following vigorous verses by Herbert Kaufman may be applicable; they are reproduced by permission from Kaufman's Weekly Page. Copyright by Herbert Kaufman.

> "There's room enough for all of us, but not in every place;
> There's chance enough for every one, but not in every race;
> They may not have a job for you in town just at this minute,
> But there's a nearby city with far better prospects in it.
> Your trade is overcrowded? Well, new industries are starting;
> A driver out of work can take to other things than carting;
> Ambition does not fold its hands and quit at one sound thrashing;
> You aren't worth a tinker's dam if you can't stand a smashing.
> We don't pronounce the P in luck, but Pluck 's the way we spell it.
> If you are worth your salt, your future course will quickly tell it.
> Adapt yourself to circumstance and seek a new location;
> You aren't forced to stick to one spot or vocation."

Pharmacy offers the greatest possibilities for coöperation between employer and employee, potential with a quality of helpfulness that does not obtain in other business pursuits. The former, through experience, has gained a deeper knowledge of men and things to be found in practical life, while the latter has the advantages of modern pharmaceutical education. There is the opportunity of each telling the other all he knows in regard to what will help both, whereby the service of the pharmacy and of pharmacy will be enhanced.

Bernard Meador presents the thought in this way:

> The man who trains his assistants to do his work in accord with his idea; the man who hands the key to every situation to some one else below him, is the man who is making progress—fastest and surest. We build as we are assisted to build—and we are assisted to build as we teach others to do our work.
>
> No man prepares himself for greater opportunity until he prepares some one else for the opportunity he has already accepted and lived up to. No man takes a bigger and more important place in business or in life unless he has prepared the way for some one else to do the work he is leaving. It is the way of life, the way of evolution, the way along which life's greatest, highest and finest success is attained.

Applying the thought further, the early affiliation of pharmacy graduates with associations is highly advantageous; interchange of ideas and experiences, made possible by associations, promotes educational development, and the right kind of educational development is a most powerful aid and a means of economizing energy in the upward struggle of a young pharmacist. E. G. E.

PHARMACY SCHOLARSHIPS AND ENDOWMENTS.

IN 1904, Fairchild Bros. & Foster established a pharmacy scholarship in Great Britain, open to any apprentice or assistant, of either sex, preparing to qualify under the Pharmacy Act, 1868, or the Pharmacy Act (Ireland), 1875. The primary condition imposed is that the applicants satisfy the requirements for admission to the respective qualifying examination, *i.e.*, the Minor Examination in Great Britain or the License Examination in Ireland.

One scholarship of the value of £50, tenable for one year, is awarded annually as the result of examinations conducted simultaneously at designated points in England, Ireland, Scotland and Wales. The Fairchild scholar is at liberty to select any well-known school or college of pharmacy, or any other well-recognized educational institution where pharmaceutical subjects are taught to meet the requirements of the syllabus of the Pharmaceutical Society of Great Britain or Ireland, where he or she proposes to study for the qualifying examinations. The money of the scholarship is devoted to paying the college fees and expenses, and what is over is paid to the scholar during the school period.

The object of the founders of the scholarship being to encourage study during the period of apprenticeship, and thus materially to facilitate and enhance the chances of success of the diligent student on entrance for the qualifying examination, no student already qualified or holding another scholarship can obtain this one.

The subjects of examination are concerned with elementary chemistry, materia medica, practical pharmacy and prescription reading, and elementary business knowledge.

The scholarship is in charge of a Committee of Trustees, now composed of the following pharmacists: Messrs. Peter Boa, Albert Hagon, William Kirby, A. J. Phillips, W. F. Wells and A. E. Holden.

President Caswell A. Mayo, in his presidential address, was permitted to announce the establishment of a Fairchild Scholarship in the United States, whereby the sum of $300 will be annually provided and given to a deserving student, to be selected by a Commission composed of the Presidents of the American Pharmaceutical Association, the National Association of Boards of Pharmacy, the American Conference of Pharmaceutical Faculties and the editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. There are no restrictions placed by Mr. Fairchild in the award of the scholarship; his only request is that he may have an opportunity of reviewing the plans of the Commission after they have been formulated. The report will doubtless be laid before the Association at the Atlantic City Meeting, September 5–9, 1916.

President Mayo, in commenting on this gift, said that he was certain this generous provision, placed, as it is, in the hands of the national body of pharmacists, will not only prove of great value in encouraging the fortunate recipients to pursue their studies, but will serve as an example for others who have attained financial success in the field of pharmacy, to give substantial and public acknowledgment of their obligation to pharmaceutical education, by making substantial gifts to the cause.

This, then, aside from making acknowledgment of this gift, is one of the objects of this writing. American pharmacy has made possible many of the successes of the manufacturers in this country, though the honesty, energy and business qualities active in these institutions must be given earned praise and credit. The American Pharmaceutical Association has been largely instrumental in shaping and sustaining pharmacy. The schools of pharmacy have performed their duty with honor and altruistic motives that are ever deserving of our recognition.

Many, if not all, of the schools and colleges engaged in teaching pharmacy have one or more available scholarships, some have endowments, but only one has been substantially provided for by such a gift. A number of State associations have established scholarships in the pharmacy departments of State universities. Eventually, further provisions will be made for pharmaceutical education, especially in view of the fact that every educational institution is dependent, to some extent, on financial income other than fees from students, in order to efficiently carry on the good work they are engaged in. When the essentials of success in the various divisions of pharmacy are thoroughly analyzed, then better support will be given to the organizations and mediums that have contributed to these possibilities. And this is said with no contamination of disappointment but with a happy assurance.

E. G. E.

SECTION ON HISTORICAL PHARMACY, AMERICAN PHARMACEUTICAL ASSOCIATION

EAST INDIAN VOYAGES OF THE SIXTEENTH AND SEVENTEENTH CENTURIES IN THEIR RELATION TO DRUGS, SPICES AND DYE-STUFFS.*

BY ARTHUR W. LINTON.

ENGLISH VOYAGES.

> Marchaunt Adventurers, chanting at the windlass,
> Early in the morning, we slipped from Plymouth Sound,
> All for adventure in the great New Regions,
> All for Eldorado and to sail the world around!
> Sing! The red of sun-rise ripples round the bows again.
> Marchaunt Adventurers, O sing, we're outward bound,
> All to stuff the sunset in our old black galleon,
> All to seek the merchandise that no man ever found.
> —ALFRED NOYES, "A Knight of the Ocean-Sea."

The same year that Vasco da Gama started on his first voyage to the Indies, the elder Cabot, a Venetian at that time in the service of King Henry VII of England, reached the shore of Labrador. His expedition was the first (if we except the Vikings) to reach the mainland of America. The next year his son Sebastian, also under the flag of St. George, sailed to the same coast that his father had discovered. We read that he thought verily to have passed on still on the way to Cathaia, and would have done so if mutiny had not hindered him and made him return. (Hakluyt, vii, p. 150.) Turning to the southward, he explored the coast as far as Cape Hatteras or farther. At that time the northern continent seemed only a barrier in the way of a voyage to Cathay, and such expeditions as were sent by the English were expected to find a northwest passage to the sea which washed the Indies. One of these efforts was made in 1517, another in 1527. The English were turning their discoveries to some account even at this period, for while Portuguese and Spaniard were bringing gold and spices each from his own particular India, English fishermen were taking cod on the Banks of Newfoundland.

In 1527 we find Robert Thorne, an Englishman who had long been resident in Seville, addressing to King Henry VIII a declaration setting forth the rich treasures which the Emperor (Charles V) was at that time receiving from the Indies. "Also to write unto your Lordshippe of the new trade of spices of the Emperour, there is no doubt that the Islands are fertile of Cloves, Nutmegs, Mace, and Cinnamon, and that the saide Islands, with others thereabout, abound with golde." Urging the northwest route as a feasible and desirable one, Thorne mentions as a particular advantage that navigators travelling that way "may pass . . . in perpetual clereness of the day without any darkness of the night . . ." (Hakluyt, ii, pp. 159–181.)

Sir Humphrey Gilbert, "Knight of the Ocean Sea," writing in 1576 to prove the existence of a northwest passage and its advantages, urges the shortness of the voyage which will lead to "all the wealth of the East parts . . . gold, silver, precious stones, cloth of gold, silkes, all manner of spices, grocery wares, and other kinds of merchandise of an inestimable value. . . ." (Hakluyt, vii, pp. 158–190.) Richard Hakluyt, in 1578, advising certain gentlemen who were about to accompany Martin Frobisher on a northwest voyage, urges them to seek "Cochenile, natural to the West Indies . . . or any Roote, Berrie, Fruite, Wood or Earth fit for dying." (Hakluyt, vii, p. 244.) In 1589 we find Elizabeth granting to Adrian Gilbert authority "to seek . . . the passage to China and the Isles of the Moluccas." (Hakluyt, vii, p. 375.) John Davis, in 1585, 1586, and 1587, made three separate attempts to reach the Moluccas by the northwest passage.

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* Continued from p. 481, May issue.

There remained another possibility of a shorter way to India. In 1553 we find an English expedition of three vessels under Hugh Willoughby attempting a northeast passage. The ships became separated in a storm, and two of them, the *Bona Speranza* and the *Confidentia,* became ice-bound, the crews perishing to a man, probably in January, 1554. The *Edward Bonaventure,* commanded by Richard Chancellor, found its way into the White Sea. Here Russian settlements were found, and the Englishmen explained that they had come for "amitie and commerce." Chancellor and some companions were taken the long journey of 1500 miles by sledges to visit the Czar, Ivan the Terrible, at Moscow. Here they were kindly received and entertained in the barbaric court. Ivan showed great willingness to enter into commercial relations with the English.

Chancellor's return, in 1554, with a message from the Czar requesting that English merchants visit Russia, and offering fullest freedom and protection, aroused great interest among London traders. In February, 1555, the Muscovy Company was chartered, with exclusive privilege of trade to Russia. The same year two ships, the *Edward Bonaventure* and the *Philip and Mary,* were despatched with goods for trade, and with agents of the company to take up their residence in Russia. The two started on the return voyage in 1556, accompanied by the *Confidentia* and *Bona Speranza,* which had been rescued from the ice by the Russians. But these two ill-fated vessels were now wrecked and lost, and later in the voyage the *Edward Bonaventure* was driven ashore on the coast of Scotland. The Russian ambassador, who had sailed in the *Edward,* was saved. Such were the tragic voyages which opened the career of the Muscovy Company, which was to become prosperous, and for a number of years to carry on a profitable Russian trade.

The company still continued its search for the northeast passage, sending one venture under Burroughs in 1556, and one under Pet and Jackman in 1580. In the commission given to the commanders of the latter voyage we find mention of articles to be carried "for a shew of commodities." The list includes: "Red Oker for painters, Sope, both kinds, Saffron, Aquavitæ, Brimstone, and Antimonie." The death of Jackman and the failure of this expedition did much to discourage further efforts to seek a northeast passage.

Very early in its history the Muscovy Company instructed the factors sent to Russia "to use all wayes and means possible to learne how men may passe from Russia either by land or sea to Cathaia." In 1558, Anthony Jenkinson journeyed down the Volga to the Caspian, by coasting vessel around the northern end of the Caspian to Koshak, and hence by caravan on a long and eventful journey to the ancient city of Bokhara. Jenkinson found that the trade of this Bactrian city was much decayed. Such merchants as resorted there from India, Persia, and Russia were comparatively poor. He learned that the overland route from China to

Bokhara was closed because of war in central Asia. Further, very few spices were being brought to Bokhara. Hence the prospects of obtaining the products of Asia by trading to Bokhara did not seem promising to Jenkinson.

In 1561, Jenkinson was sent to investigate the Persian trade. "And for the better knowledge to be had in the prices and goodness of such things as we do partly suppose you shall find in the parts of Persia, we doe herewith deliver you a quantity of certain drugges, whereby you may perceive how to know the best, and also there are noted the prices of such wares and drugges as be here most vendible."

Between 1561 and 1581 there were six "voyages" or trading expeditions to Persia. A letter from Arthur Edwards, one of the company's factors, under date of April 26, 1566, gives interesting details in regard to the Persian and Syrian trade. Edwards mentions the following as commodities to be brought out of Persia into England: "Raw silk, pepper, ginger, nutmegs, brimstone, allom (alum), gals (nutgalls), cloves and yew for bow-staves." He also describes the traffic at Aleppo in Syria: "wherein are many Venetians . . . who buy gals, tallow, saffron, skins, cotton-wool . . . and also will serve us of all kinds of spices, we giving them sufficient warning to fetch it in the Indies and will deliver it us in Shamaky." Edwards discusses the great quantities of alum to be had in a certain province of Persia, with the probable cost of transportation to England.

One other reference by one of the factors in a letter to his company cannot fail to interest: "There is a great river which falleth into the Caspian Sea by a town called Bachu (Baku) neere unto which is a strange thing to behold. For there issueth out of the ground a marvelous quantitie of oil, which oil they fetch from the uttermost bounds of all Persia, it serveth all the country to burn in their houses. This oil is black and is called Nyfte. . . . There is also by the said town of Bachu another kind of oil which is white and very precious; it is supposed to be the same that is here called Petroleum." Little did the Englishman dream that in the twentieth century fleets would sail the Caspian to transport the Bachu oil, and that battles would be fought for the possession of this region. (For the records of the activities of the Muscovy Company, see Hakluyt, vol. iii; also Gerson and Vaughn, "Studies in the History of English Commerce in the Tudor Period.")

In still another way English merchants of the sixteenth century were seeking to secure a share of the East Indian trade. As early as 1511 to 1534 we find mention of "certain tall ships of London, Southampton, and Bristol" making voyages to Sicily, Chios, and Crete, in the Mediterranean. ("Early Voyages in the Levant," H. S., p. ii.) In 1569, Gaspar Campion, who visited Chios (Scio), found, among the principal commodities growing in the island itself, "silke and masticke." Other commodities of Chios and nearby islands and coasts were galls and oil (olive oil). He says that while in Spain oil cost 25 and 30 pounds per ton, in the dominions of the Turk it could be had for five pounds per ton. (Hakluyt, v, p. 111.) The travels of Jenkinson and other agents of the Muscovy Company had done much to call attention to the possibilities of trade in the eastern Mediterranean. In 1581, Elizabeth granted a charter to the Company of Merchants of the Levant. The company sent out its first ship, the *Great Susan,* in 1582. A factory was established at Constantinople.

Certain remembrances prepared by Richard Hakluyt for a friend about to go to Turkey tell us something of the manner in which the demand for dyestuffs stimulated exploration. Extracts follow: "1. Anile (indigo) wherewith we color Blew to be brought into this realm by seed or roote. 3. And also all other herbs used in dying. . . . 5. To learn all earths or minerals used in dying and their natural places. . . . 8. To procure from Muhaisira, a city in Ægypt . . . the seed of Sesamum the herbe . . . of this much oyle is made and many mills set on work about the same. . . . 14. To endevor a vent of our Saffron." (Hakluyt, v, p. 229.)

A traveller who visited Egypt in the sixteenth century visited the source of a highly-esteemed article of medicine of that period. He writes: "Without the city (Cairo) . . . are to be seene divers piramids among which are three marvelous great. Out of them are dayly digged the bodies of ancient men not rotten but all whole. . . . And these dead bodies are the Mummies which the Phisitians and Apothecaries doe, against our will, make us to swallow." (Hakluyt, v, p. 336.)

The Levant Company enjoyed a long, prosperous, and honorable career, not passing out of existence until 1825, but we cannot follow its history further than we have done.

It is not for us to tell the story of the English adventurers of the Elizabethan period: how Drake and Hawkins, Grenville and Oxenham, and many others in their little ships of one or two hundred tons went out to meet the navies of the King of Spain; how they lay in wait for the treasure-ships on their homeward voyages; how they sacked the cities of the Spanish Main; how on occasion they sailed into the harbors of Spain itself and cut out rich prizes. All of this has been the theme of song and story since the days when they lived and fought. However, a few of these exploits have a direct bearing upon the English quest of a way to the Spiceries, and these will be mentioned.

In 1587, Sir Francis Drake sailed into the harbor of Cadiz and wrought havoc upon the Spanish fleet which was preparing for the great attack to be made upon England the following year. After further harrying the coasts of Spain and Portugal, Drake ran to Saint Michael, in the Azores, where he surprised and captured a great East India carrack, the *Sant Philip*. "And here . . . it is to be noted that the taking of this great Carak wrought two extraordinary effects in England, first that it taught others that Caraks were no such bugs but that they might be taken . . . and secondly, in acquainting the English nation more generally with the peculiarities of the exceeding great riches and wealth of the East Indies. . . ." (Hakluyt, vi, pp. 442–443.)

Still more notable in its consequences, perhaps, was the exploit of John Burroughs. He had gone with a squadron to the Azores to lie in wait for the West Indian treasure-ships. He was informed that no West Indian fleet would be sent that year, but that the East Indian carracks might be expected very soon. Waiting for these, Burroughs captured two out of the five. The *Madre de Dios* did not surrender until after she had made a stout resistance. The chronicler says: "And here I cannot but enter into the consideration and acknowledgment of God's great favor . . . who by putting this . . . into our hands discovered their secret trades and Indian riches which hitherto lay strangely hidden." This vessel of 1600 tons was the largest the English had ever seen, and when viewed in Leaden Hall caused profound astonishment among the islanders. Her lading "consisted of spices, drugges, silks, calicoes, quilts, carpets, and colors. The spices were pepper, cloves, maces, nutmegs, cinamon, greene ginger the drugs, benjamin, frankincense, galingale (galangale), mirabolans, aloes zocotrina, camphire; the silks, damasks . . . ; also pearls, muske, civet, amber-griece, elephants' teeth (ivory), porcellan of China, coco-nuts, hides, ebenwood as black as jet." (Hakluyt, vii, pp. 105–118.)

The first English vessels to pass through the Straits of Magellan, as well as the first to reach the Indies, were those commanded by Drake on his celebrated voyage of 1577–1580. Of the five vessels which started on this voyage, Drake's flag-ship, the *Pelican,* later called the *Golden Hind,* was the largest, and it was rated at 100 tons. Two of the smallest were abandoned before the Straits were reached. Drake stopped for refreshment at Port St. Julian, on the coast of Patagonia, where Magellan had rested on his circumnavigation, and found there the skeleton of a man Magellan had executed for mutiny. In this thing, too, Drake was to follow Magellan, for he found it necessary to condemn to death Captain Doughty, his own warm friend and second in command, because he tried to steal away with one of the vessels.

The *Golden Hind, Elizabeth,* and *Marigold* passed the Straits, but were dispersed by a terrific storm. The *Marigold* was never heard of; the *Elizabeth,* Captain Winter, repassed the Straits and returned to England. Drake himself was driven far to the south, but in beating back he discovered Cape Horn. Before this it had been supposed that the Straits were the only opening in a continent which extended on to the Pole Antarctic.

Drake now followed up the western coast of South America, spreading terror as he went. The Spaniards had believed the waters of the Pacific to be safe from all intrusion, and their commerce as well as their coast towns fell an easy prey to Drake's little company. His most notable exploit was the capture of the Peruvian treasure-ship *Cacafuego.*

The *Golden Hind* continued up the coast, and by some is believed to have gone as far as Vancouver Island. Turning southward, a stop was made near San Francisco Bay; the surrounding country Drake named New Albion. Here the natives were treated so kindly that they wept at the departure of the Englishmen. Now,

> Far out of sight of land they steered, straight out
> Across the great Pacific . . . .

After visiting some of the islands of the Philippine group, the *Golden Hind* reached the Moluccas, the goal of all voyagers to those seas. The King of Ternate welcomed Drake and treated him kindly, supplying " rice, Hennes, imperfect or liquid sugar, sugar-cane, . . . store of cloves, and meal which they call Sagu (sago) made of the tops of certain trees tasting in the mouth like soure curds. . . ." At Baratreve they found nutmegs, ginger, long pepper, lemons, and sago. At Java Major (Sumatra) the voyagers were received with courtesy. They reported the " French pocks " very common in the island and " cured by sitting in the sunne, whereby the venomous humour is drawn out."

The *Golden Hind* now headed for the Cape of Good Hope, and had so pleasant a passage that they believed the Portuguese had lied in reporting this the most dangerous cape in the world. On November 3, 1580,

> A little weed-clogged ship
> Grey as a ghost glided into the Sound
> And anchored, scarce a soul to see her come
> And not an eye to read the faded scroll
> Around her battered prow, " The Golden Hind."
> —Alfred Noyes, " Drake," Book VII

Long before Drake returned the fame of his exploits on the South American coast had reached Spain, and Philip was angrily demanding that immediately on his return Drake be hanged as a pirate. Elizabeth, following her policy of keeping enemies as well as friends in doubt as to her intentions, is said to have made answer that "if we find that Drake has injured our friends, he will be duly punished." Elizabeth braved Philip's anger by honoring the *Golden Hind* with her royal presence, and Francis Drake knelt before her, to rise Sir Francis. (Hakluyt, xi, pp. 101–132.)

Once again English merchants had to be shown that with no great force Englishmen might sail in the Indian seas, might plunder Spanish ships and traffic for spices, and still come home safely. In 1586, Thomas Candish (or Cavendish) sailed from England, through the Straits of Magellan, up the South American coast, through the East Indies, and home by Cape of Good Hope, returning in 1588. Seated in a corner of the White Hart Inn at Plymouth, Candish penned a letter to Lord Hunsdon, the Queen's chamberlain, begging him to inform Her Majesty of the service he had rendered her, " . . . For the places of their wealth, whereby they have maintained and made their warres, are now perfectly discovered, . . . I ran along the coast of Chili, Peru, and Nueva Espana . . . burnt and sunke 19 sails of ships . . . matter of most profit was a great ship which I took at California which came out of the Philippines. . . . I sailed among the Islands of the Moluccas where . . . I was well intreated . . . where our countrymen may have trade as freely as the Portugals if they will themselves. . . ." (Hakluyt, xi, pp. 376–378.) Among the spices which Candish brought home was star anise, which seems to have reached Europe for the first time in his vessels. (Flückiger and Hanbury, p. 21.)

Candish had little to tell that Drake had not told eight years before, but the temper of the English had changed much since Drake's return. Only a few months before Candish returned the Great Armada had come up the Channel. Spanish sea-power, although far from being destroyed, would never again inspire with terror as it had done.

Still, Englishmen were slow to embark in a new venture, and three more years of discussion were required. In 1591 the first trading expedition for the Indies was fitted out. The *Penelope,* admiral; *Marchant Royall,* vice-admiral, and *Edward Bonaventure,* "rere-admiral," composed the little fleet. They were commanded by George Raymond. By the time the Cape was reached, scurvy was raging among the crew. A stop was made, cattle purchased from the natives, and seal and penguins killed. The ship's companies had been so depleted that the *Marchant Royall* was sent back. Soon after leaving the Cape, the *Penelope,* with all on board, went to the bottom in a storm. Captain Lancaster, in the *Bonaventure,* held on for the Indies. Reaching the Malay Peninsula, the sick men were landed. Within a short time the company was reduced to 32 men and one boy, many of the survivors sick. Notwithstanding their weakness, they captured a number of small Portuguese vessels, and Lancaster would have captured more, but that the crew took advantage of his sickness to head for home. Misfortune still followed them. In the Atlantic they were driven by adverse winds to the American coast, and here drifted helplessly for a time. While most of the crew were ashore the cable broke, and the bark drifted out, manned by five men and a boy. Somehow this little company brought the ship into Plymouth. The men left in the West Indies were brought home by a French vessel.

The water-damaged spices in the hold of the *Bonaventure* had cost a terrible price in lives of British seamen. This much the expedition had done: it had shown that a Pope's bull could not give a secure title to India and its spices.

(Hakluyt, vi, pp. 387–407; see also Beckles Willson, "Ledger and Sword," i, pp. 10–13.)

The second attempt of London merchants to trade to the Indies was even less successful than the first. In 1596, Captain Wood sailed with three small ships, laden with cloth, knives, and bullion, to be exchanged for spices. Not one ship or seaman was ever to see England again. By devious ways the story came back of the capture of a Portuguese ship in Indian waters, of fearful losses by fever, of shipwreck in the West Indies on the return voyage, and of murder of the survivors by the Spanish. ("Ledger and Sword," i, pp. 14–15.) Surely only a great faith could have seen beyond these feeble attempts and tragic failures the founding of a colonial empire.

Although the *Edward Bonaventure* of the first English voyage had returned with a cargo of spices before Houtmann had started with the first Dutch expedition, in the last years of the century the Hollanders were leaving the English far behind in the race for the Indies. So many vessels were the Dutch using in the Indian trade that in 1599 they sent agents to London to buy or charter English ships. The answer given to these agents was as follows: "Our merchants of London have need of all our ships and have none to sell to the Dutch. We ourselves intend forthwith to have trade with the East Indies." ("Ledger and Sword," i, p. 20.)

For there were now signs of a real awakening among London merchants to the possibilities of the Indian trade. It was realized that only by a strong organization could anything be accomplished. A movement was afoot to secure a charter conferring exclusive right to the Indian trade for a term of years. The first meeting held by the promoters was on September 24, 1599. A notable gathering it was, including members of the Turkey Company and other merchants and men of substance in the city, several aldermen, and the Lord Mayor himself. Then there were men who had sailed with Drake and Cavendish, veterans of the northwest and northeast voyages, men who had braved the power of Spain on the seven seas and were willing to do so again. Within a short time 33,000 pounds were subscribed and steps were taken to obtain a charter. Now ensued long-drawn-out delays. Elizabeth was negotiating a treaty with Spain, and wished to do nothing to offend that nation.

A memorial was drawn up showing "Certayne reasons why English Merchants may trade into the East Indies especially to such parts as are not subjecte to the Kinge of Spain and Portugal. . . ." On the last day of the sixteenth century, Elizabeth signed the charter of the Governor and Company of Merchants of London trading to the East Indies; conferring the privilege of exclusive trade into the "countries and ports of Asia and Africa, and into and from all of the islands, ports, towns, and places of Asia, Africa, and America, or any of them beyond the Cape of Buena Esperanza or the Straits of Magellan, where any traffic may be used." (Purchas, ii, pp. 366–391; also "Ledger and Sword," i, p. 43.)

Long before the charter had been granted, the merchants had been making preparations for a voyage. The first vessel purchased by the company was the good ship *Susan;* later the *Hector* and *Ascension* were acquired. The adventurers then sought for a larger and better ship; one that was fitted not only to carry a cargo, but to hold her own in a fight with the best of the Portuguese vessels. Such a ship was found in the *Malice Scourge,* a ship of 600 tons burden, with a privateering record. She was rechristened the *Red Dragon.* The cargo purchased consisted of iron and various cloths, such as kerseys, broadcloths, and Norwich stuffs. It was the English policy from the first to make the Indian trade build up home industries by sending the products of English factories to barter for spices. ("Ledger and Sword," i, chapter ii.)

The commander and ships' captains were very carefully chosen. The chief in command was Captain James Lancaster, captain of the *Bonaventure,* of the voyage of 1591. All of the other captains had made the Indian voyage before. ("Ledger and Sword," i, p. 41.) Among the many records available of preparations for the voyage, it is interesting to note that "Edmund Scott, who pretends to a knowledge in the choice of drugs and spices, is to be employed in the voyage upon putting in 200 pounds venture." ("Calendar of State Papers," Colonial, East Indies, 1513–1616, p. 119.)

The "four tall ships" sailed from Woolwich, February 13, 1601. No farther from home than the coast of Guinea, a Portuguese carrack was sighted, and the English were soon transferring 146 butts of wine, besides stores of oil and meal, from her hold to their own. Probably the plentiful supply of wine thus provided did much to bring on the scurvy which soon ravaged the crews. The Admiral had taken the precaution to bring in his own ship "certain bottles of juice of limons which he gave to each one as long as it would last, three spoonfuls every morning fasting." The other vessels seem to have been unprovided. By the time the Cape was reached, 105 men had succumbed, and a six weeks' stop was necessary to restore the survivors. Another long stop was made at Madagascar.

On June 2, 1602, the squadron reached Achin, in Sumatra, where were found 18 sail in the harbor, including Spanish, Portuguese, Dutch, and traders from various parts of Asia. Learning the name and rank of the native potentate, Lancaster filled in one of the form letters signed by the Queen, with which he was provided, and hastened to present this to the monarch, together with a belt, some pistols, plumes, looking-glasses, glass toys, and other trinkets. Doubtless the letter made a favorable impression, but the gifts won the King's heart, and he was ready to promise anything. While he was in this mood Lancaster secured his signature to a treaty. The Admiral had much to learn in regard to native princes and their promises; he soon found that it was one thing to hold a treaty and another to secure cargoes of spices.

However, Lancaster bethought him of another way to obtain a lading. English vessels need not lack cargoes so long as Portuguese carracks were on the seas. Leaving two factors, the English sailed from Achin, and within a short time captured a 900-ton prize laden with cloves and pepper. Returning to Achin, Lancaster loaded the *Ascension* and ordered her home to gladden the hearts of the waiting merchants. The *Susan* soon followed, while the *Dragon* and *Hector* went to Bantam, in Java. Here no difficulty was met in establishing a factory, and, English wares proving popular with the Javans, trade went merrily on. The Admiral purchased a 40-ton pinnace, and sent her to the Moluccas to establish trade there, while he with his two remaining vessels returned to England. The King of Bantam sent to Queen Elizabeth as a present "certain Bezar-stones, very faire." (The bezoar-stone is a concretion in the alimentary canal of ruminants, especially of a certain species of goat. Bezoars were formerly considered as very valuable in medicine. They are frequently mentioned in records of Indian voyages.) Elizabeth was never to receive the present of the King of Bantam, as she died before Lancaster reached home. (Purchas, ii, pp. 392–437.)

One day in June, 1603, a messenger rode into London with the message for the East India Company that the *Ascension* was in Plymouth. Letters were written to the West Country that provision be made for the comfort and relief of the sick among the crew, and further forbidding the officers to break bulk or sell anything until London was reached. A record later in the month says, "The *Ascension* is in the River," and mentions that six canvas suits *without pockets* were to be made for the use of the porters employed in handling the pepper and cloves. The cargo of the *Ascension* consisted of 210,000 pounds of pepper, 1100 pounds of cloves, 6030 pounds of cinnamon, and 4080 pounds of gum lacquer. ("Calendar State Papers," Colonial, East Indies, 1513–1616, p 138.) The other vessels of Lancaster's fleet arrived in due time, bringing altogether 1,000,000 pounds of spices.

The company, although much embarrassed by deaths among the members and by difficulty in prompt disposal of the spices, in March, 1604, sent a second voyage, using the same ships that had gone on the first. Henry Middleton was placed in command. The journal of this voyage is the only unmutilated record we have of an early English voyage to the Indies. Some few incidents of this venture will be mentioned. As usual, the crews suffered fearfully from scurvy while opposite equatorial Africa. Under date of May 6, we find the entry that " . . . many of our men are sick of scurvy, calenture, bloody flux, and worms, being left to the mercy of God and a small quantity of lemon juice every morning; our physician shipped for that purpose being as unwilling and as ignorant in anything that might help them." ("Voyage of Sir Henry Middleton," H. S., p. 6.) It is difficult to understand how, after the experience of Lancaster on the previous voyage, the company could have neglected to provide an adequate supply of lemon-juice.

The Admiral had orders not to stop at the Cape for refreshment, but when the sick men saw that he intended to run past, a cry for mercy went up, and Middleton, looking out of his cabin door, " . . . where did attend a swarm of lame and weak diseased cripples," was moved to pity and consented to run into Saldania Bay. (This harbor, named in honor of Saldanha, a Portuguese commander, was resorted to by the ships of all nations that followed the Cape route. It is our modern Table Bay.) The sick were all restored by the fruits, vegetables, and fresh meat obtained at Saldania, but before the squadron reached Bantam in December conditions were just as bad again. Here the Dutch proved good friends, meeting the English outside the harbor with fresh food and offers of assistance. The latter were gratefully accepted, since the English crews were scarcely able to bring the vessels into the harbor.

At Bantam they found relief from the scurvy, only to fall victims to flux—doubtless tropical dysentery. In almost every day's record in the journal we find mention of one or more deaths from this dread disease. The Dutch had early discovered the water of Bantam to be unwholesome, and the mortality among the English stationed there was always high.

Leaving the *Hector* and *Susan* to be loaded with spices and despatched for England as early as possible, Middleton, with the *Dragon* and *Ascension,* went on to the Island of Amboyna. The Portuguese had a fort there, and upon Middleton's imparting to them the news that Elizabeth was dead and that early peace between Spain and England might be expected they agreed to allow the English to trade. However, the Dutch spoiled this arrangement by appearing with a strong force and compelling the surrender of the Portuguese. Middleton saw that his prospects for trade were ruined and went on to the Moluccas.

While in the Moluccas the English witnessed the capture of the Portuguese fort on Tydore, as has been recounted. They were able to secure a considerable quantity of cloves by barter, but were unable to make satisfactory arrangements for future business. In the meantime the *Ascension* had visited Banda and trafficked for nutmegs. Returning now to Bantam, Middleton found that of the 24 men left there, 12 had succumbed to flux.

The *Dragon* and *Ascension* now sailed for home. Off Saldania Bay they found the *Hector* almost helpless as the result of a terrific storm in which her consort, the *Susan,* had perished. The *Hector* was repaired, and the three vessels reached home in May, 1606. The two first ventures of the company, considered as one, had paid a profit of 95 percent on the investment, not including interest. (" Voyage of Sir Henry Middleton," H. S.; also " Ledger and Sword," i, chapter iii.)

We cannot continue with the records of individual voyages of the East India Company, but must be content with mention of some of their difficulties and defeats, and with a general view of their achievements. English trade did not develop with great rapidity, as had the Portuguese and the Dutch. During the early years of its history the English Company was able to send no more than two to four ships annually, and the fifth venture consisted of a single ship. In numbers of ships and men, as well as in amount of capital available for trade, the English at this period were far weaker in the Indies than either Portuguese or Dutch. How did they fare in competition with these powerful rivals?

We have noted the capture of Portuguese carracks before the English first traded to the Indies. This policy was continued both by the commanders of the two independent voyages of 1591 and 1596, and by the East India Company's captains. Lancaster, of the company's first voyage, had found it easier to obtain spices by capture from the Portuguese than by barter with the natives. So we see that from the beginning the English had been the aggressors. It is true that at this time there was war between Spain and England and every English merchant vessel was a privateer. However, even after the establishment of nominal peace, conflicts were frequent. There was seldom a time when either one would not attack the other if it was considered that advantage could be gained by so doing. The English seem almost always to have been the victors in these contests. The small English vessels could outsail the carracks, and English gunners could generally shoot with greater accuracy than those of Portugal. During the early decades of the seventeenth century the Portuguese were being crowded out of their factories by the Dutch, and their vessels were being sunk and captured by both Dutch and English, so that their power in the Indies rapidly declined.

One notable incident of the struggle between Portuguese and English was the Ormuz affair. It will be remembered that Albuquerque had found Ormuz dominating the commerce of the Persian Gulf and had captured it from the Persians. Under the Portuguese the city had continued to enjoy great prosperity. Now the English were contesting with the Portuguese for the commerce of Persia, and in 1620 and 1621 there were several pitched battles in and near the Persian Gulf. Observing the growing power of the British, the Khan of Shiras, who ruled considerable territory bordering on the Gulf, undertook to force them to aid him in driving the Portuguese out of Ormuz. The company's factor at Ispahan having despatched a rich consignment of silks for Jask, the Khan captured the caravan and refused to release it, and also threatened to stop all further trade with the interior unless the English would allow their ships to aid him in the capture of Ormuz. Thus constrained, and probably not unwilling to further weaken the Portuguese, the English, in 1622, diverted several of their vessels from the Molucca trade long enough to participate in the attack on Ormuz.

After a lengthy siege the Portuguese were forced to surrender. The Portuguese captives fell into the hands of the English and their lives were spared. (Purchas, x, pp. 342–374.)

The record of the relations between Dutch and English in the Indies is that of a continuous series of jealousies, accusations, and bickerings, finally breaking into armed strife. It is very difficult to obtain an unbiased view of the relations, especially since most of our sources have been of English origin. The Dutch were in the Indies in far greater strength than the English, naturally they wished to control the trade, unavoidably there was strife. In the latter part of the second decade of the seventeenth century the Dutch, on one pretext or another, seized several English vessels.

The English Company drew up a formal protest, which was presented to the home government; this was met by the Dutch sending a long list of offences committed by the English. Commissioners were sent from Holland to negotiate with King James for a settlement. The proceedings dragged on and promised little hope of relief. The English Company grew impatient and sent Captain Best to the Indies with a strong squadron to protect the company's interests, by force if necessary. Best aided the Javans to drive the Dutch out of Bantam, which proved but an empty victory for the British. Twelve English ships and 15 of the Dutch were just about to clash in the Straits of Sunda, when the *Bull,* an English vessel, arrived with news that the two nations had settled their difficulties.

The agreement which had been reached provided for a restitution of ships and property, a division of the trade on the basis of amount of capital invested by each company, and a joint council of defence. Each nation was to provide ten ships of war, not to be used in the carrying trade. The agreement proved entirely unfeasible, and was unsatisfactory to both parties.

The incident which was to promote the most bitter resentment on the part of the English was the so-called "Massacre of Amboyna," in 1623. The Island of Amboyna had come to be an important centre of the spice trade, and here the Dutch had a strong fort and garrison. The English had an undefended factory operated by a group of men, of whom Gabriel Towerson was chief. The Dutch and English had lived side by side for two years, and had shown each other many courtesies. According to the English version, the Dutch obtained from certain Japanese a confession of an English plot to surprise and capture the fort. That the little group of almost unarmed Englishmen should have entertained such ideas is not to be thought of. The Dutch invited the unsuspecting Englishmen to the fort, and there proceeded to inflict the most horrible tortures, until in their agony most of the Englishmen confessed that the plot had existed. All were then executed. ("Ledger and Sword," i, chapter vi; also Purchas, x, pp. 507–522.)

This sad affair forms the basis of the play, *Amboyna,* by John Dryden. This was written in 1672, probably by command, as an aid in stirring up English sentiment in favor of a Dutch war. The author ascribes every virtue to the English, and every sin in the calendar to the Dutch. He makes one of the latter say:

> I wish your whole East India Company
> Were in this room that we might use them thus,
> They should have fires of cloves and cinnamon,
> We would cut down whole groves to honor them,
> And be at cost to burn them nobly.
>
> —JOHN DRYDEN, *Amboyna,* Act V, scene i.

The Dutch had always regarded the islands as the district of profitable trade, and the early efforts of the English likewise had been directed towards establishing themselves in the archipelago. Ten or eleven years after the company's first venture, when they still had only the most precarious footing in a few of the islands, we find the English attempting to locate factories on the coast of India. Several such attempts failed or proved unprofitable.

In 1612, Captain Best arrived with the *Red Dragon* and the *Hoseander* off Swally Road, on the Malabar coast, with the purpose of establishing a factory at Surat. A Portuguese fleet undertook to prevent him. The battle which followed lasted, with intervals of rest, for several days, and was a desperate engagement. The Portuguese finally withdrew. Best's two vessels were not only afloat, but apparently in good condition. Very soon after this the Great Mogul granted permission for the establishment of a factory at Surat. This was the first English foothold on the Malabar coast, and was destined to grow into a great and prosperous factory. (" Ledger and Sword," i, pp. 95–97.)

We are given by one of the company's servants at Surat, late in the seventeenth century, a view of the trade as it was at that time. He says: " The South Sea trade is still maintained to Bantam with such cloth as is vendible there, from thence with dollars to China for sugar, tea, porcelane, laccared ware, quicksilver, and coffee; which with cowreys, little sea-shells, come from Siam and the Philippine Islands; gold and elephants' teeth from Sumatra in exchange for corn. From Persia . . . come drugs and Carminia wool; from Mocha, Cohar or coffee. The inland factories subject to it are Ahmedabad, whence is provided silks, cutlasses; Agra, where they fetch indico (indigo) . . . and fine calicuts (calicoes). Along the coast . . . Calicut, for spice, ambergreez, granats, opium, with saltpeter. . . ." (" Ledger and Sword," i, pp. 381–382.)

We learn from the above that tea and coffee were coming to constitute an important part of the company's wares.

The history of the development of the power of the British East India Company in its relations to the traffic in drugs, spices, and dyestuffs is of the greatest importance, and, furthermore, is alive with interest. Much material is available; volumes might be written. The writer of this paper regrets that lack of time forbids him to devote adequate attention to this as well as to other divisions of the general subject. He cannot close without reference to the intensely interesting material found in the " Court Minutes " of the East India Company which have been available in abstracted form in the " Calendar of State Papers." In the " Court Minutes " are recorded discussions of all of the affairs and interests of the company, ranging all the way from progress of negotiations between James I and the Commissioners of the States of Holland to mention of a complaint of a London merchant that a few sacks of cloves purchased of the company were full of stems and dirt. Only a few scores of interesting items can be mentioned.

October 3, 1615.—" Mr. Lutterford accused of mingling dust and other trumperies amongst the pepper that he had from the Company; excuses himself that he had done the like before and promises to have it screened at Naples where it is to be sold, but they held it to be a great deceipt, wrong, and scandal to the Company, disgrace, discredit, and disparagement to this nation, and to maintain the honour of the Kingdom and Company resolved to have a warrant procured to make a stay of it all." (" Calendar of State Papers," Colonial, East Indies, 1513–1616, p. 431.)

January 8, 1610.—" . . . the youth, an apothecary, skilful in distillation and commended by Lord Carew, to go as surgeon's mate's mate." ("Calendar of State Papers," Colonial, East Indies, 1513–1616, p. 202.)

December 10, 1614.—"Capt. Castleton to be entertained, (retained or hired) the duties he will have to perform; trial to be made of sundry of his proposals, including the baking of fresh bread at sea, with the grinding of corn an exercise fit to preserve men in health . . . distilling fresh water by having stills fitted to the furnaces, carrying a hogshead of fresh provisions to be used only in cases of necessity. . . . Offer of Dr. Burgis to present the Company with an antidote against poison, scurvy and other diseases with which people are subject these long voyages. . . ." ("Calendar of State Papers," Colonial, East Indies, 1513–1616, p. 353.)

November 26, 1621.—" . . . The spices given towards Christide unto any great men, honourable benefactors to this Company or to any others as in former times, not to be given this year by reason of the great damages the Company have sustained, not doubting but all that know the same will take none offence thereat." ("Calendar of State Papers," Colonial, East Indies, 1617–1621, pp. 1491–1492.)

March 5, 1619.—"Virginia wheat, called maize, much commended for an excellent strong meat and hearty for men at sea, and more wholesome than beef; the Virginia Company to be desired to procure some for trial by the next shipping." ("Calendar of State Papers," Colonial, East Indies, 1617–1621, p. 255.)

CONCLUSION.

Professor Walter Raleigh, of Oxford, in his essay on "English Voyagers," says: "Men have travelled as they have lived, for religion, wealth, knowledge, pleasure, power, and overthrow of rivals." In the imperfect picture which has been presented of the struggles of four nations to roll back the clouds from the unknown parts of the world, we have seen evidences of each one of the motives enumerated by Raleigh. In the cases of many of the individual actors in the world-drama, as well as of the nations themselves, an analysis of motives is very difficult. However, running all through the story we have found the same "odor of far-fetched spices," and we can safely say that had it not been for the desire for spices and drugs, and for the rich profits to be gained by a control of the supply of these, the Age of Discovery would not have come when it did.

Spices and drugs have not lost their importance as the centuries have passed. The same pepper and cinnamon, cloves and nutmegs, that made up the bulk of the cargoes of Portuguese, Dutch, and English vessels in the seventeenth century, are still counted among the important products of the Asiatic coasts and islands. They are no longer obtained to any considerable extent by barter with natives, but are produced under cultivation on great plantations in the Dutch and British East Indies. Their culture has been most carefully studied and highly systematized. No longer do the carracks and galeots spend from six to nine months in the long Cape voyages; but speedy steamers, travelling by way of the Suez Canal, make the trip between Batavia and Amsterdam, or between Singapore and London, in a few weeks at the farthest.

This narration may have served to call to our attention that these products of the East which to-day seem so commonplace have each its story; a story written in the blood of half a dozen European nations, as well as that of countless Asiatic tribes and peoples. It is well that we should think occasionally of the little vessels, hardly as large as our fishing schooners, finding their way across trackless oceans; that we should recall the mariners on those little ships, living sometimes for weeks on putrid penguins and foul bilge-water; that we should try to imagine the suffering of a ship's crew stricken with scurvy, bloated limbs, swollen gums, teeth dropping out; that we should think of a little group of factors on some remote island, succumbing one by one to tropical dysentery, and wondering whether any would be left alive when the company's vessel returned after its long absence. It is even well that we should bring to mind the fights which often raged for hours on tropical seas; when sailors stripped to the waist served the double-shotted guns until yard-arm touched yard-arm, and then grasped cutlass or pike to board or repel boarders. They fought because of various hatreds—racial, religious, and what not; but the immediate prize to be contended for was a cargo of spices; and among the crew of the victor, perhaps one-sixth of the value of the prize would be divided. Under whatever flag they fought, whether they died in battle, by shipwreck, or from fever, or whether they lived to return crippled and diseased to a home port, there to drag out a miserable old age, the world of to-day is indebted to those seamen.

Tschirch has said that for Pharmacognosy the Age of Discovery was not a renaissance, but the beginning of an entirely new era. Where before men had known the bark, the seed, or the wood, having only the vaguest conception of the plant from which obtained, competent observers now studied the growing plants. Garcia da Orta, Linschoten, and other scientific men during the sixteenth century made accurate observations and recorded what they had seen. Manners of adulteration were studied and information provided which was of great aid in protecting against fraud. As for the active principles of the drugs, these were for the most part to remain unknown until a much later period. Until organic chemistry had developed no intelligent investigations could be made. The volatile oils, alkaloids, and glucosides we are even now only beginning to understand.

The exploration of the East Indies resulted in bringing to the knowledge of Europeans a number of drugs which before were unknown. Among those introduced into Europe during the sixteenth and seventeenth centuries we note: star anise, areca, gamboge, catechu, calumba, and nux vomica. Probably few Asiatic plant products would to-day be considered more important than tea, which first reached England in commercial quantities in 1669. Kino, Indian cannabis, chirata, gambier, and oil of cajuput apparently did not reach Europe until later than the seventeenth century.

We may believe that even yet additions will be made to our materia medica from among the products of the Indies. From "Pharmacographia Indica" and other sources we learn of many Asiatic drugs as yet little known in Europe and America. Doubtless, upon investigation, a number of these will prove to be valuable and important.

BIBLIOGRAPHY.

Abram, A.: "English Life and Manners in the Later Middle Ages." London, 1913. Pp. 67–68, 137, 143.

Barbosa, Duarte: "Coasts of East Africa and Malabar at the Beginning of the Sixteenth Century," translated from an early Spanish manuscript by Hon. H. E. J. Stanley. Hakluyt Society, 1866.

Beazley, C. Raymond: "Voyages and Travels Mainly During the Sixteenth and Seventeenth Centuries" (from various sources). Two volumes. New York. Found also in "An English Garner."

Brown, Horatio F.: "Venice, An Historical Sketch of the Republic." London, 1893. Pp. 237, 238, 250–256, 324–326.

"Calendar of State Papers," Colonial Series, East Indies, Preserved in Her Majesty's Public Record Office and Elsewhere. London, 1862. Volumes embracing the following periods: 1513–1616, 1617–1621, 1622–1624, 1625–1629, 1630–1634. Papers are derived from three great archives—Public Record Office, British Museum, and the India Office. Comprises all papers connected with early voyages of northwest or other passages to India or "Cathay" in the Public Record Office, those in the British Museum, and the original correspondence, together with Court Minutes of the East India Company, from its establishment.

Camoëns, Luis de: "The Lusiad, or The Discovery of India," an Epic Poem. Translated from the Portuguese by William Julius Mickle. Fifth edition. London, 1907.

"Cathay and the Way Thither, a Collection of Mediæval Notices of China." Translated and edited by Colonel Henry Yule. Two volumes. Hakluyt Society, 1866.

Clavijo, Ruy Gonzales de: "Narrative of the Embassy to the Court of Timour at Samarcand" (1403–1406). Translated by Clements R. Markham. Hakluyt Society, 1859.

Clusius, C.: "Aromatum Medicamentorum Simplicium Historia." Antwerp, 1593. Lloyd Library, Cincinnati.

Cocks, Richard: "Diary of, in the English Factory in Japan" (1615–1622). Edited by Edward Maunde Thompson. Two volumes. Hakluyt Society, 1883.

Da Gama Vasco: "The Three Voyages of." From the "Lendas da India" of Gaspar Correa. Translated from the Portuguese by Hon. H. E. J. Stanley. Hakluyt Society, 1869.

D'Albuquerque, Alfonso: "Commentaries of." Translated from the Portuguese edition of 1774 by Walter De Gray Birch. Three volumes. Hakluyt Society, 1875.

Day, Clive: "A History of Commerce," New York, 1907. Chapters ix to xxi.

Dryden, John: "Amboyna," with Notes by Sir Walter Scott. In vol. v, Dryden's Complete Works. London, 1808.

Dymock, William: "Pharmacographia Indica." Three volumes. London, 1890. Lloyd Library, Cincinnati.

Flückiger, Friedrich A., and Hanbury, Daniel: "Pharmacographia." London, 1879.

Galvano, Antonio: "Discoveries of the World from their First Original unto the year 1555." Corrected and published in English by Richard Hakluyt, 1601. Now reprinted with the original Portuguese text, and edited by Vice-admiral Bethune. Hakluyt Society, 1862.

Gerson, Armand J.: "The Organization and Early History of the Muscovy Company; in Studies in the History of English Commerce in the Tudor Period." University of Pennsylvania, 1912.

Gildemeister, E., and Hoffman, Fr.: "The Volatile Oils." Second edition, by E. Gildemeister. Translated by Edward Kremers. New York, 1913. Vol. i, chapter i.

Hakluyt, Richard: "The Principal Navigations, Voyages, and Discoveries of the English Nation. Made by Sea or Over-land to the Remote and Farthest Distant Quarters of the Earth at any Time within the Compasse of these 1600 Yeeres." First edition, London, 1589; second edition, revised and enlarged, 1598, 1599, and 1600. Reprinted at Glasgow, 1903. Twelve volumes.

Hawkins, Sir Richard: "Observations on Voyage into the South Sea, 1593." Reprinted from the edition of 1622. Edited by C. R. Drinkwater Bethune. Hakluyt Society, 1847.

"India in the Fifteenth Century, a Collection of Narratives of Voyages to India." From Latin, Persian, Russian, and Italian Sources. Hakluyt Society, 1857.

Leguat, François of Bresse: "Voyage of." Translated from the first French edition. Edited by Pasfield Oliver. Two volumes. Hakluyt Society, 1891.

Linschoten, Jan Huyghen van: "Voyage to the East Indies." From the old English translation of 1598. Edited by Burnell and Tiele. Two volumes. Hakluyt Society, 1885.

Magellan, Fernandus: "First Voyage Round the World." Translated from the accounts of contemporary writers by Lord Stanley of Alderley. Hakluyt Society, 1874.

Middleton, Sir Henry: "Voyage to Bantam and the Maluco Islands." From the edition of 1606. Annotated and edited by Bolton Corney. Hakluyt Society, 1855.

Motley, John Lothrop: "History of the United Netherlands." Four volumes. New York, 1869. Vol iii, pp. 544–580; vol. iv, pp. 105–111, 130–135, 243–250, 444–446.

Noyes, Alfred: "Drake." In vol. i, Collected Poems of Alfred Noyes. New York, 1913.

Okey, Thomas: "The Story of Venice." London, 1905. Pp. 125–129, 191.

Polo, Ser Marco: "Concerning the Kingdoms and Marvels of the East." Translated and edited by Col. Sir Henry Yule. Third edition. Two volumes. London, 1903.

Purchas, Samuel: "Hakluytis Posthumus or Purchas His Pilgrimes; Contayning a History of the World in Sea Voyages and Lande Travells by Englishmen and Others." Imprinted at London, 1625. Reprinted at Glasgow, 1905. Twenty volumes.

Pyrard, François of Laval: "Voyage of." Translated from the third French edition of 1619 by Albert Gray. Two volumes. Hakluyt Society, 1887 and 1890.

Raleigh, Sir Walter: "The Invention of Ships." No. 166 in Old South Leaflets, vol. vii. Boston.

Ridley, Henry N.: "Spices." London, 1912. Pp. 1, 99–100, 158–162, 206–208, 228, 250–253, 326–327, 391–392, 424.

"Social England." Edited by H. D. Traill and J. S. Mann. London, vol. iv, section i, pp. 70–74, 185–191.

"Spain and Portugal, History of." Five volumes. Harper and Bros. New York, 1860. Vol. iii, pp. 202, 233–237, 242–252.

Spielbergen, Joris van: "The East and West Indian Mirror, an Account of a Voyage Around the World" (1614–1617). Translated by J. A. J. de Villiers. Hakluyt Society, 1906.

Stephens, H. Morse: "Portugal." New York, 1898. Chapters vii and ix.

Tavernier, Jean Baptiste: "Travels in India." Translated from French edition of 1676 by V. Ball. Two volumes. London, 1889. Lloyd Library, Cincinnati.

Tschirch, A.: "Handbuch der Pharmacognosie." Leipsic, 1909. Erster Band, Zweite Abteilung.

Varthema, Ludovico di: "Travels of" (1503–1508). Translated from the original Italian edition of 1510 by John Winter Jones. Hakluyt Society, 1863.

Vaughn, Earnest V.: "English Trading Expeditions into Asia Under the Authority of the Muscovy Company" (1551–1581), in "Studies in the History of English Commerce in the Tudor Period." University of Pennsylvania, 1912.

William of Rubruck: "Journey to the Eastern Parts of the World" (1253–1255). Translated from the Latin by William Woodville Rockhill. Hakluyt Society, 1900.

Willson, Beckles: "Ledger and Sword, or The Honourable Company of Merchants of England Trading to the East Indies." Two volumes. London, 1903. Vol. i.

Zimmern, Helen: "The Hansa Towns." New York, 1895. Period II, chapters vi and vii.

THE COMPOSITION OF A ROMAN OINTMENT.

A Roman amphora has been found in the course of the excavations at Lugano containing a fairly soft unctuous substance with the odor of storax and turpentine. The author has been able to identify this with certainty as being a cosmetic ointment. It was found to have contained beeswax, some animal fat, turpentine, oleoresin, storax, and henna. All these were still detectable by the use of appropriate solvents and reagents. Doubtless it was the toilet cream of a fashionable Roman lady.—L. Reuter (*Comptes rend.*, 1916, 162, 471).

WOMEN'S SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION.

WOMAN IN HOSPITAL PHARMACY.*

MISS BERTHA OTT.

Some one has said that this is the woman's century. That is true; and as we are just in the hallway of the twentieth century, so are we now only on the outer edge of one of the greatest movements the world has ever seen,—the coming of woman into her own.

No one can deny that wherever women have entered they have not only in the majority of cases made a personal success, but have elevated the realm which their presence has graced, and have frequently been leaders whose guidance man is compelled to follow.

The name of woman has been written on the scroll of fame, side by side with her male prototype, in painting, sculpture, music, architecture, astronomy, chemistry, medicine, dentistry, pharmacy, nursing, and every other calling.

The fact that they have succeeded, at least equally with the men, is indisputable. But let us not honor merely those who have obtained eminence, but also the plodders in the ranks, the great body of the ranks and files in these various callings.

The question which concerns us in this paper is woman's place in the profession of pharmacy, more intimately in institutional pharmacy. In every country and civilization, no matter how ancient, we find historical facts of medical schools, hospitals and pharmacies, many of them showing wonderful developments, most of them having employed women as physicians and pharmacists. We may mention the fully developed college of physicians in Egypt in the eleventh century B.C., which permitted women to practise there. Medical women were found even in the comparatively unknown kingdom of Siam. Here still exists the oldest hospital for women of which we have any knowledge. It is in Bangkok, the capital of Siam. Bancroft, in his " Native Races of the Pacific States of North America," affirms that in all the larger Mexican cities, hospitals were established by the government; endowed with ample revenue; attended by experienced physicians and nurses; that the Mexicans had studied and practised medicine from ancient times; that they possessed botanic gardens and suitable places and arrangements for dissection, and that women physicians were common among them.

The oldest hospital in the new world is the " Hospital Jesus Nazerina " in the city of Mexico. It was founded by Cortez in 1524 and is still conducted as a hospital, largely with an endowment left by the great conqueror in his will.

The oldest hospital in the world that is still conducted as a hospital is the famous " Hotel Dieu," said to have been built by Laudry, Bishop of Paris, about 660 A.D. Schelenz, in his " History of Pharmacy," in reference to Hotel Dieu, says: " Sisters occupied positions in the drug-room and sold remedies specially prepared in their hospital pharmacy, which was as well equipped as any pharmacy in Paris."

It is strange that the eminent position of women in medicine declined slowly after the twelfth century, and practically disappeared after the sixteenth century, to be almost forgotten until the nineteenth century. The new opportunity for women did not arise until the middle of the nineteenth century.

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* Read before Women's Section A. Ph. A., San Francisco meeting.

> "It is the woman's century. The cry goes forth,
> With standard raised in bright, majestic pride
> To womanhood, whose pure intrinsic worth
> Is now revealed unto a waiting world."

We deem it proper at this moment to pay tribute to the first registered woman pharmacist engaged in hospital pharmacy in our land, namely Dr. Susan Hayhurst. Dr. Hayhurst came of an old Quaker family and was born in 1820 in Attleboro, Bucks County, Pennsylvania. After graduation from the local Friends' School, she went to Philadelphia, where for a time she taught school, later entering the Women's Medical College, by which she was graduated in 1857. While attending physician at the Women's Hospital, she became interested in pharmacy and decided to enter the Philadelphia College of Pharmacy, graduating in 1883; she was the first woman to receive a degree from that institution. She served as pharmacist at the Women's Hospital for thirty-three years. Being a born teacher, she utilized her knowledge and wide experience by employing young women as assistants who were unable to secure positions to gain practical experience in pharmacy. It is said that she gave instructions and aid to sixty-five young women. This shows that Dr. Hayhurst had the right spirit of coöperation with her sister workers of her profession. During the Civil War she was chairman of the Committee of Supplies of the Pennsylvania Relief Association. She was an enthusiastic floriculturist, a leading figure in the work for women's welfare, and a member of the Pennsylvania Pharmaceutical Association. She died August 7, 1909—famous for her good works and loved and honored by all those who knew her. A fine oil portrait of her adorns the walls of the Museum of the Philadelphia College of Pharmacy, placed there through the efforts of the present pharmacist of the Women's Hospital in Philadelphia.

There are about 7000 hospitals and similar institutions in the United States,—to our knowledge only a small percent of them employ pharmacists. How great the field for professional workers of our ranks!

Every open hospital of fifty beds will have sufficient prescription work to employ a progressive pharmacist, one who has the profession at heart and whose sympathy for mankind will further her interest in the advancement of her institution. The modern hospital offers the pharmacist every opportunity in "true" pharmacy, every convenience regarding facilities and necessary supplies for manufacturing and testing of pharmaceutical and clinical preparations will be granted. The hospital connected with a medical school offers great opportunities for those who are interested in scientific and research work.

We dare say, unless conditions are soon remedied in general pharmacy, hospital pharmacy will rank first in upholding the ethical side of our profession. The hospital, conducting a training school for nurses, in most cases offers the pharmacist the privilege of demonstrating her knowledge in materia medica, chemistry, etc., by instructing a class of nurses in said branches, and thus be the means of inspiring others for our noble profession.

As the work in the hospital may generally be arranged very systematically, the pharmacist may find ample time for study and reading the pharmaceutical literature, and every up-to-date hospital will be provided with a most interesting library which will be at her disposal. For recreation she may, if hospital grounds permit, cultivate medicinal plants, such as are indigenous or may be naturalized in our country. This will benefit the teacher and pupil nurses of the Materia Medica class. To a great extent she may observe the Sabbath as a day of rest and will not be denied the privilege of following her religious inclinations. She may be a member of some organization of her chosen profession.

We are happy to know Providence put it into the hearts and minds of the organizers of the Women's Section of the American Pharmaceutical Association to grant us the privilege of becoming a factor in this great and noble organization, and bringing those active in institutional pharmacy in closer touch with each other.

In return we offer our service and interest to the progress and development of the organization in all its branches, to encourage women pharmacists to enter hospital pharmacy and join the eminent A.Ph.A.W.S. Loud may it sound the bugle call for more professional workers in our field. Hark! we hear it now—

Behold the dawn! The darkness flees!
Bright rays of light are shimmering on flowers and trees.
All gone the gloomy shadows, all full of life and light
Is nature after passing through the mysteries of the night.
But hark! dost hear the martial melody
That, like the heedless breakers of the sea,
Comes dashing toward us on the morning breeze?
'Tis the Bugle Call! The Bugle Call!

What means this call, this call that thrills
The very heart when deep the soul it fills?
'Tis the call for action, no longer delay.
Awake! awake! 'tis the dawning of day!
Away with all hesitancy, doubts and fears
That have kept our women pharmacists for years and years
From coming into their own!
Hear the Bugle Call! The Bugle Call!

Come forth, ye brave hearts and leave behind
The counter, trifling things that all your aspirations bind.
A college graduate, versed in Medico's lore,
Has a higher calling than selling toilet articles by the score.
Of more hospital pharmacists have we need
Who can apply their knowledge in worthy deed,
And reign supreme in the realm they love—
Heed the Bugle Call! The Bugle Call!

What are the tasks that to us fall
As hospital pharmacists if we heed the call?
Besides the prescription work, there are nurses bright to teach.
One can be a living example to those we hope to reach.
There is laboratory study and research work to do.
Be a member of the A. Ph. A. W. S.,—and an active member, too.
Come, then, seek your place in hospital pharmacy, and
Help raise its standard to the best in the land.
Heed the Bugle Call! The Bugle Call!

(H. R.)

NOTE.—Miss Hannah Reiswitz, who is connected with the social service work of Bethesda Hospital, should have credit for the poem.

B. O.

SECTION ON COMMERCIAL INTERESTS, AMERICAN PHARMACEUTICAL ASSOCIATION

SOME SOURCES OF PROFIT AS APPLIED TO RETAIL PHARMACY.*

BY A. S. PARKER.

Profit in business may be materially influenced by failure to take into account the small items of expense; and further by conserving material that ordinarily finds its way to the waste; by failure to appreciate what constitutes a proper mark-up; by a lack of careful supervision of sales and also by other causes which I may touch upon in a hit-or-miss manner.

There are many large mercantile houses whose net profits are derived entirely from their cash discounts. To allow anything of value to become waste would not be permitted by some of our most successful concerns. Careful observation has shown that many business men—so called—regard small savings as trivial and beneath them.

To refer to some of the items of expense: bills for gas, electric lights, coal and ice, in stores operating under same conditions, seem to vary in proportion to the supervision given. The question whether these items are being used in excess of requirements does not occur to some, while others will secure equal results with less outlay. Large consumers of these commodities frequently spend large amounts of money in order to secure greater efficiency, thus effecting a small economy when reckoned by a single month.

The matter of repairs may become impressive—destruction of appliances which under ordinary treatment should be practically indestructible; the burning out of the furnace grate; the destruction of hose due to indifference and harsh treatment; a small rent in the store awning which after a brief interview with a high wind may require a patch about the size of a ten-dollar bill, or possibly a new awning—those are among the drains on the bank account and which under a thrifty management would not occur.

I have seen stores that were continually buying spatulas, pestles and weights. Did it ever occur to them that the spatulas could be ground down and the pestles reset? Oh, no, it is too small a matter to bother with. Such trifling economies should be left to such concerns as the Standard Oil Company, who consider no reasonable economy beneath their notice.

Drug store conservation should mean the conversion of all material of value into cash. Waste paper may represent considerable value, likewise packing cases and old bottles, besides getting rid of these things for which there never seems to be *a good place*.

As illustrating how small wastes may become an avalanche, the following circumstance seems worth relating: A certain large grocery store became convinced that their profits were inadequate, and instituted a thorough investigation. By carefully reweighing all packages and checking material used, it was estimated that the losses incurred from overweight and from the excessive use of string and paper bags amounted to about four hundred dollars per month.

A large corporation called the attention of one of its branch managers to what appeared to be an excessive use of wooden bungs and sent an expert to ascertain why so much solder was used in the manufacture of tin cans.

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* Read before Section on Commercial Interests, A. Ph. A., San Francisco meeting.

So it is plain that in the matter of painstaking oversight and the practice of small economies on the part of our great corporations, precedent is not wanting.

Losses are incurred from the indifference of clerks who have little knowledge of values; the tendency being undercharge. There is also considerable loss from the making of small sales instead of large. Why should not the suggestion be made to a customer of a twenty-cent bottle of glycerin instead of a ten; a ten-cent package of absorbent cotton instead of a five, or a ten-cent, or better, cake of soap? The writer has in mind a store that sells twenty-five-cent tooth brushes instead of fifty-cent ones.

Referring again to lack of knowledge of market values, the writer some time ago called up several stores on the 'phone and asked the price of goldenseal root. The prices ranged from five to thirty cents per ounce; the drug at the time being quoted at $2.75 per pound. The writer has frequently seen a druggist quoting prices from a manufacturer's price list that was one or more years old.

Depreciation of merchandise either from deterioration or from becoming obsolete is a prolific source of loss. During the past few years a great many old-time pharmaceutical favorites have been converted into junk and should be treated as such. The present-day physician is not a prescriber of drugs to any great extent, so rid yourself of the dead ones and straightway forget it.

Many salesmen seem to follow the lines of least resistance and sell from the top, with the result that articles on the bottom become stale or shopworn.

Too great an intimacy between the edible and smokable merchandise of the store and the employees results in loss.

Dead stock may reach a large figure while slow-moving merchandise rarely returns a satisfactory profit. Don't be caught by the free goods bait. Drug store bargain counters are not a success.

The lack of knowing just what constitutes a proper mark-up carries with it diminished profit. This cannot of course be considered in connection with those lines whose selling price is fixed; but how can a druggist, who has no knowledge of what his selling expense is, be expected to intelligently base his selling price or even intelligently buy?

Given the selling expense, the pharmacist should endeavor to secure a net profit of not less than fifteen percent. In order to do this he should tell the manufacturer of toilet goods, confectionery, etc., who comes to him with a proposition of twenty-five to thirty-three and one-third percent gross, to please not consume his valuable time. Owing to the increased expense of doing business, the pharmacist must increase his gross profit, which should be at least forty percent on toilet articles and confectionery, while other lines must carry more.

Perhaps the greatest loss that accrues is from the automatic clerk—the nickel-in-the-slot sort of salesman who, upon the tender of, say twenty cents, hands the customer the twenty-five-cent article asked for and with a " thank you, anything else? " rings up the sale.

There was a psychological moment when the customer's attention could have been directed to an article of equal or superior merit without being impertinent. Such a proceeding is a salesman's license that is universally recognized. By the way, such men are not in the employ of the great retail stores. Ask yourself the question: " Am I paying out my good money for salesmen or automatons? "

As a check upon the operations of employees, all sales should be entered in a duplicating salesbook, such as are commonly used in the large stores. Such a book supplies a much-needed record of the operations of employees and enables one to check up their sales, prices, etc.

The successful pharmacist is generally one who is master of details. He recognizes the value of the advertising to be gotten from a well-conducted and attractive store. A well-kept pharmacy is attractive to the public; they like to visit them—seemingly enjoying the surroundings. We can all of us call to mind pharmacies of this sort. The store reflects the man, and the man, by virtue of his character and ability, his methods, becomes the exception and he creates without cost a business asset—an asset measurable in dollars and cents.

If we shall set for ourselves the task of searching out the avenues of profit for the pharmacist, we shall find them to be many and in so doing we may create a professional business man, and thus give an affirmative answer to the oft-repeated question: "Can pharmacists be successful tradesmen?"

ABSTRACT OF DISCUSSIONS.

Mr. Troxler: I think Mr. Parker overlooked one saving in the drug business, and that is the discounting of the bills.

Mr. Lackenbach: The proprietor of a business establishment may have some very well defined ideas as to economics. The difficulty is in inculcating those ideas into his employees. Very often the employees are more or less raw material, who have not had the advantages of proper training at home to begin with—training in neatness, orderliness and cleanliness, and the person in charge of a business can devote a very large proportion of his time to calling the attention of his subordinates to leaks, losses and disorderliness. That is a very difficult matter for a busy man, a man in charge of an active enterprise. That is probably where the losses come in—through the inability of the director of affairs to give very much of his personal attention to those small losses.

In the saving of paper, for example, it takes a good deal of time to call the attention of the shipping clerk to the paper and twine that come in. The shipping clerk gets careless, in other words, and if you have to remind him every time it comes to your attention that he could save that piece of paper——. In the first place, it takes up a good deal of room and accumulates, and it takes time to hunt out just the right piece of paper to do up a parcel. It takes much less time to draw on the large roll of heavy paper, and very often what is seemingly a saving is a direct loss in time and efficiency.

Mr. Hamner: In the section on salesmanship, Mr. Parker spoke of suggestiveness, and selling a better and higher priced article. I do not recall in this city of making a purchase when the salesman suggested something which was in line with the purchase already made. We find that in dry goods. When a man buys a shirt, it is natural to suggest a necktie or a collar. In pharmacy, on the average drug store purchase, a tooth brush should be followed up with a special paste or powder. The purchase of paper for stationery calls for a line of envelopes to match. It seems to me a valuable point and one which will increase sales to the purchaser instead of the perfunctory question, "Is there anything else?"

Mr. Fletcher: That was one of the things that came up yesterday in reading another paper. Mr. Weed brought out the arrangement of a drug store having certain departments close together on account of the allied interests for selling other merchandise than that called for. The principal teaching of the Owl Drug Company at the present time to their salesmen is what they term the running-mate system—to sell the article called for by the customer, give him what is wanted and what is called for, but at the same time to sell him a running-mate—with the tooth-powder the tooth brush, with the hair brush a comb or a preparation; if it is a shaving brush that is asked for find out if he has got plenty of shaving soap or razor blades; in fact, anything that may be termed a running-mate.

They quiz salesmen of the concern continually on running-mates. Very often we get a sheet or two of foolscap with a number of items on it, with blank space alongside of them, and are asked to suggest running-mates for each item, and to bring that paper to the next meeting of salesmen. If you have anything unusual in the way of a running-mate, something that the majority have not suggested, you are called on to defend your reason for suggesting that for a running-mate.

I spoke of one instance yesterday in which a man suggested and carried the sale through on a twenty-five-cent bottle of witch hazel—sold a vibrator for $17. That is almost extreme, but it shows the plan on which they work. They sell the goods or hand over the goods that are asked for and never make a substitution in that way—anything to bring back and make a constant customer of the man who comes in; but a man's ability is gauged by the number of sales he makes. A man who continually sells one item and sells one item only is not rated as a good salesman. The man who has two or more articles on his check is rated as better, and the more double sales a man makes, the better he is rated.

A PLAIN TALK ON BUSINESS METHODS.*

BY B. E. PRITCHARD.

In the preparation of this paper there is no intention of handing down a line of advice; my only reason for attempting to write it is to present truths that an experience covering more than forty years behind the counter and at the prescription case has taught me.

If memory serves me aright, it was one of our own living beacon lights, Dr. William C. Alpers, who in one of his many valuable contributions to the literature of pharmacy said something like this: "As we try to move forward in the busy streets of the city we often find that those who get in our pathway and block our progress are men who are moving in the same direction as ourselves, but who seem to have no objective point, and by their loitering movements retard those back of them who have."

What an excellent picture is here presented! Men who ought to be depended upon to help improve the business or profession in which they engaged are often the most serious handicaps we have to overcome—the sprags that interfere with the forward movement of the cause which we hold so dear, and to the elevation and improvement of which we have devoted the best years of our life.

Any man who has ever undertaken to work for the passage of legislation, which has been submitted for the purpose of putting the practice of pharmacy upon the high level it should occupy, has learned to his sorrow and bitter disappointment that he has been trammelled and retarded, and in nearly every instance defeated, by the opposition of men engaged in conducting alleged drug stores.

For sixty-three years the American Pharmaceutical Association has been striving to reach this goal, yet to-day that which it has sought to accomplish seems to be still a mirage, the sight of which encourages faithful men in the ranks to persevere in the good work, hoping that some bright day their labors will bear fruit for the benefit of those who shall come after them. Do not lose heart, brethren; during almost two thousand years the gospel has been preached to all nations, and in every tongue, and yet there are several millions still unconverted. The same condition which faces us, faces Christianity—men who have been leaders, men who have preached the doctrines of Christianity to others, have themselves become stumbling blocks to those to whom they have preached; and yet, how many are ready to declare that the Christian religion has failed in its mission? As the world has been made better, and still better, by the good work of faithful Christian men who have given of their best to make it so, so has the practice of pharmacy been improved and will continue to improve so long as there shall remain workers in our ranks who are faithful to their trust—men who will continue to hold to their ideals and preach them to their fellows.

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* Presented before Section on Commercial Interests, A. Ph. A., San Francisco meeting.

The trouble with us fellows who try to point the way by looking backward is the same as a motorist who puts the headlight on the rear of his car where it will only serve to blind those who come after him instead of lighting up the roadway and showing them the spots to avoid.

When we succeed in eliminating from the drug business all those who are concerned only in making their investments pay dividends, without regard to the character of the business done, we will have made a long stride in advance, and will have removed some of the sore spots on pharmacy that cause men to look with dubious eyes and regard the keeping of a drug store as a mere cloak to cover sinful transactions—often a disguise for a bar-room. Then, too, there are men who, under the guise of drug stores, conduct places where so-called patent medicines, worthless fakes and questionable articles are exploited at demoralizing prices, without any responsibility on the part of the owners either as to safety in quality or honesty in representations; and the pharmacy laws of most states do not hold these men amenable to their provisions—do not restrict ownership of drug stores to men qualified to practise pharmacy. They, almost invariably, annul to a great extent their own purpose by the use of some phrase, such, for instance, as this, which is taken from the pharmacy law of my own state, Pennsylvania: " Nor shall it interfere with the making and dealing in proprietary remedies, popularly called patent medicines, nor prevent storekeepers from dealing in and selling the commonly used medicines and poisons."

It is generally conceded that patent medicines should be given no recognition in pharmacy; that their sale should be discouraged, and their indiscriminate use by the public frowned upon. At the 1915 meeting of the Pennsylvania Pharmaceutical Association, during the discussion of a proposed venders' license law, a case was cited as " an awful example." It was shown that a certain patent medicine had been mixed in a bath-tub in a hotel and later hawked upon the city streets. During this discussion one of our most valuable members with difficulty restrained himself and held his peace, and, as he expressed himself to me later, this is what he had in mind: " We men who are here condemning this particular act on the part of one man as an awful example are guilty of freely handing over to our friends and patrons every hour in the day, stuff of a similar character, concerning the antecedents of which we know nothing, and of the contents of which we are absolutely ignorant, much of which have been thrown together under just as vile, or even worse, conditions than the one cited. What right have we to cast stones at others when we cannot come into court ourselves with clean hands?"

There has been under way for some time, under the auspices of the National Association of Retail Druggists, a movement known as the " Propaganda for Reform" in prescription writing, by the exploiting of U.S.P. and N.F. preparations. This is a righteous campaign deserving of wider application than is being given it.

But along comes the Harrison Narcotic Law, with its numerous regulations, one of the latter, Treasury Decision 2172, covering the provision for exemptions, which places proprietary preparations and remedies on exactly the same level as U.S.P. and N.F. preparations: " Prescriptions written by registered physicians calling for any quantity of the narcotic drug unless such prescription is written for a preparation or remedy prepared in accordance with the United States Pharmacopœia or National Formulary, or other formula, or private or proprietary formula, carried in stock by a dealer which may be dispensed without a prescription."

There you see that the Commissioner of Internal Revenue, with the sanction of the Treasurer of the United States, tells us, in effect, that there exists no difference in their opinion between the vilest ready-made patent medicines, without reference to how or by whom, and the official preparations made in accord with the provisions of the recognized standards that have undergone the tests laid down by the highest authority on the subject in the world (1915).

To this, Mr. J. W. England, Secretary of the Council of the American Pharmaceutical Association, in a paper read before the Pennsylvania Pharmaceutical Association, makes this objection: "This decision is open to serious question, and the Treasury Department has erred in making such a decision, whereby the medical profession is discriminated against in favor of ready-made preparations and remedies, and that an unnecessary burden is thereby imposed upon the physician and pharmacist without resultant advantage."

It is the duty of every man to do his utmost to foster and protect the good name of his chosen calling, and hence every clean druggist should, whenever opportunity presents itself, protest against the ignorantly constructed legislation that is constantly being urged to regulate pharmacy, while at the same time he should be just as zealous in striving to secure proper legislation when an organized effort is being made to secure it. Dr. J. H. Beal tells us in the Midland Druggist that "The American public is a fair-minded jury but it must base its conclusions on the evidence and arguments submitted. If we do not deny or protest against the sensational stories of druggists' faults and crimes, we have no right to reproach the jury for accepting the alleged facts as true."

In the effort the Fair Trade League is making to secure relief from unfair competition, every right-minded druggist should lend a hand by directing the attention of his congressman to the Stevens Bill. The Fair Trade League has gone into court with a clear-cut, formal complaint that will bring the practice squarely before the Federal Trade Commission, the decision of which is expected to settle the question of the legitimacy of under-selling campaigns.

I trust that every member of the American Pharmaceutical Association who listens to the reading of this paper, as well as those who may read it later, will accept it as an appeal not to sit down with folded hands and wait for the other fellow to take action, for just as surely as he does, there will be no good thing accomplished. You are "the other fellow" to your neighbor, and if he depends upon you and you depend upon him, it stands to reason that it simply won't be done. Wake up! and let the people know you are on earth!

That the learned judges of the courts are beginning to see a new light upon this iniquitous method of merchandising is made apparent by reading this statement made by Judge Hough of the Federal Court at New York quite recently in the course of a decision handed down in a case in which a price demoralizer was complaining that his supply of a certain article was being cut off and asking an injunction against the manufacturer; the court said: "If injunction were granted, defendant and many retailers would be injured, and the microscopic benefit to a small portion of the public would last only until the plaintiff was relieved from the competition of the fourteen-cent grocers, when it, too, would charge what the business would normally bear. In short, it is the plaintiff and not the defendant who pursues methods whose hardship and injustice have often been judiciously commented upon. In my judgment, the prevention or limitation of practices such as plaintiff's (so far as consistent with statute laws) is the reverse of unreasonable."

All that seems to be needed now is for every honest merchant to set his face toward doing his part, and keep his own hands clean by avoiding complicity in any of the nefarious schemes that are being constantly brought forward to demoralize straight business methods. It is strict attention to the needs of your customers, and quality of service that bring and hold trade.

CONTRIBUTED AND SELECTED

SENSITIVITY OF SOME COMMERCIAL LITMUS PAPERS.*

BY ARNO VIEHOEVER AND CARL O. EWING.

During the course of some experiments with drug plant extracts it was found that the different litmus papers on hand did not respond satisfactorily when solutions known to contain an excess of acid or alkali were tested. Since litmus is so often used in testing the reaction of solutions, and, furthermore, since it is prescribed frequently in pharmacopœial tests, it seemed advisable to examine the litmus papers on the market in order to determine their sensitivity. Samples of blue, neutral, and red litmus papers were therefore requested from seventeen American commercial firms which were considered most likely to make their own litmus papers. Nine of these firms submitted original samples. One sample obtained from a foreign firm was also examined. Another paper of foreign make, dyed only on one side and considered to be very sensitive, could not be obtained for comparison.

Some samples received were loose in envelopes, some were in unprotected booklets, some were in colorless bottles, and some in amber-colored bottles. The paper strips were removed from the original containers with forceps (to avoid contact with the hand) and tested by momentarily immersing one end in acid (H_2SO_4) and alkaline (NaOH) solutions of the following concentrations: $\frac{N}{10}$, $\frac{N}{50}$, $\frac{N}{100}$, $\frac{N}{250}$, $\frac{N}{500}$, $\frac{N}{1000}$, $\frac{N}{2000}$, $\frac{N}{4000}$, and $\frac{N}{6000}$. In doubtful cases one end was dipped into distilled water.

The reaction of the distilled water used in all of the experiments was very close to absolute neutrality, as near as could be determined by the use of the indicators azolitmin, methyl orange, methyl red, and phenolphthalein. (A chart showing the relative position of these indicators on the hydrogen ion scale is given by Walpole.[1])

The results, which are very surprising, are given in the table, the papers of each type being arranged in the decreasing order of their sensitivity.

As can be seen by the table, there was considerable difference in the colors of the papers submitted. The differences may be partially accounted for by the fact that litmus is prepared from several different lichens, chiefly species of *Roccella, Lecanora,* and *Variolaria.* The conditions under which the fermentation of the lichens is carried on in the manufacture of the litmus also must have considerable influence. Different amounts of litmus dye used by different manufacturers will naturally cause differences in the shade and color intensity of the papers. Of other dyes added to litmus as an adulterant, only indigo has been mentioned in the literature.[2] According to Kunz-Krause,[3] indigo is a never-failing constituent of litmus. We believe that if it is present, it can be so only in very small amounts, and that its addition as an adulterant seems improbable at the present time in the light of a few experiments made with indigo solutions alone, in concentrations varying from 1:100 to 1:50000, and mixed with litmus solutions. The indigo

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* Contribution from the Pharmacognosy Laboratory, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C. Read before the Biological Section of the American Chemical Society, Urbana, Ill., April 22, 1916.

[1] Walpole: "Notes on Regulator Mixtures, Recent Indicators, etc." Biochem. J., 8, 628–640, 1914.

[2] Zörnig: Die Arzneidrogen II, 370–371, 1911.

[3] Hager's Handbuch der pharmaceutischen Praxis, Ergänzungsband, 442, 1908.

RELATIVE SENSITIVITY OF SOME COMMERCIAL LITMUS PAPERS.

	Lab. No.	Original color.*	Acid.									Alkali.								Remarks.
			N/10	N/50	N/100	N/250	N/500	N/1000	N/2000	N/4000	N/6000	Distilled water †	N/2000	N/1000	N/500	N/250	N/100	N/50	N/10	
BLUE	F	Light plumbago gray	5‡	4	4	3	3	2	2	1–	0+	0	...	...	...	...	...	..	..	Excellent. Sharp color change.
	K	Light vinaceous gray	5	4	4	3	3	2	2–	1–	0+	0	...	...	...	...	...	..	..	Excellent. Sharp color change.
	D	Grayish blue violet	4	3	3	3	2	2	1–	0	...	0	...	...	...	...	...	..	..	Very good. Quick color change.
	I	Deep plumbago gray	4	3	3	3	2	1	1–	0	...	0	...	...	...	...	...	..	..	Very good.
	H	Deep plumbago blue	4	3	3	2	2	1	1–	0	...	0	...	...	...	...	...	..	..	Fair.
	E	Forget-me-not blue	3	3	3	2	1	1–	0	...	...	0	...	...	...	...	...	..	..	Fair.
	C	....	3	3	3	2	1	1–	0	...	...	0	...	...	...	...	...	..	..	Fair.
	B	Vinaceous gray	3	2	2	1	1	1–	0	...	...	0	...	...	...	...	...	..	..	Poor.
	G	Aniline lilac	3	2	2	1	1–	0	...	...	...	0	...	...	...	...	...	..	..	Very poor.
	A	Deep dull lavender	3	2	2	1	1–	0	...	...	...	0	...	...	...	...	...	..	..	Very poor.
NEUTRAL	D	Heliotrope gray	4	3	3	2	2	1–	0+	0	...	0	...	0	1–	1	2	3	4	Very good, especially for acids.
	H	Light pinkish lilac	3	3	2	2	0+	0	...	...	...	0	0	0+	1–	2	3	3	3	Very good,
	E	Deep dull lavender	3	2	2	1–	0+	0	...	...	...	0	0	0+	1–	1	2	2	3	Fairly good.
	G	Pale lobelia violet	1	1	1–	1–	0+	0	...	...	...	0	0	1–	1–	2	2	2	3	Fair for alkali. Color change not intense for acids.
	C	Pale purplish vinaceous	1	1	1–	1–	0+	0	...	...	...	0	0	0+	1–	1–	1–	2	2	Poor, color change not distinct. Better for alkali.
	B	Light purplish vinaceous.	1	1	1–	0	...	...	...	...	...	0	...	0	0+	0+	1–	2	2	Poor, color change too weak.
	A	Light brownish vinaceous	2	1	0	...	...	...	...	...	...	0	...	...	...	0	1	1	2	Very poor.
RED	F	Hydrangea pink	..	..	...	...	...	...	...	...	...	0	0	0+	1	2	3	4	5	Excellent. Sharp color change.
	K	Venetian pink	..	..	...	...	...	...	...	...	...	0	0	0+	1	2	3	4	5	Excellent. Sharp color change.
	H	Corinthian pink	..	..	...	...	...	...	...	...	...	0	...	0	0+	1	2	3	4	Good.
	D	Pinkish vinaceous	..	..	...	...	...	...	...	...	...	0	...	0	0+	1	2	3	4	Fair.
	C	Hydrangea pink	..	..	...	...	...	...	...	...	...	0	...	...	0	1	2	2	3	Rather poor.
	I	Brownish vinaceous	..	..	...	...	...	...	...	...	...	0	...	...	0	1	1	2	3	Rather poor.
	B	Pale vinaceous	..	..	...	...	...	...	...	...	...	0	...	...	0	1–	1	2	3	Poor. Color change not intense.
	E	Chatenay pink	..	..	...	...	...	...	...	...	...	0	...	...	0	0+	1	2	3	Poor. Original color good, but change not intense.
	A	Hydrangea pink	..	..	...	...	...	...	...	...	...	0	...	...	0	1–	1	2	3	Poor.
	G	Pale vinaceous pink	..	..	...	...	...	...	...	...	...	0	...	...	...	0	0+	1	1	Very poor.

* Color Standards and Nomenclature (1912). Ridgway.
† Reaction close to absolute neutrality.
‡ The figures do not represent exact ratios, but roughly indicate the relative intensity and speed of the color changes.

solutions alone did not change appreciably in color upon the addition of 5 N acid (H_2SO_4) or alkali (NaOH). When indigo and litmus solutions were mixed the color change of the latter was obscured.

We have been informed by a member of the trade that the medical profession demands deeply colored papers, apparently in the belief that they are more sensitive. It was found, however, that the lighter colored papers gave more speedy and more readily observable color changes than the more deeply colored ones. Walpole[4] suggests that the lesser sensitivity of thick, deeply-colored papers is due to "reaction inertia," the larger amount of dye present requiring a larger concentration of acid or alkali to produce a color change.

It will be noted that there was considerable variation even in testing the comparatively strong solutions $\frac{N}{10}$ to $\frac{N}{250}$. The most striking differences were observed in the more dilute solutions. On the whole, the blue papers were the best submitted, the limits of sensitivity ranging from $\frac{N}{500}$ (1: 10000) to between $\frac{N}{4000}$ and $\frac{N}{6000}$ (approximately 1: 100000) H_2SO_4. The limits for the red papers ranged from $\frac{N}{100}$ (1:2500) to $\frac{N}{1000}$ (1:25000) NaOH; and the limits for the neutral papers, which were the poorest submitted, ranged from $\frac{N}{50}$ (1 : 1000) to $\frac{N}{1000}$ (1:20000) on the acid side and from $\frac{N}{100}$ (1:2500) to $\frac{N}{1000}$ (1:25000) on the alkaline side.

It may be of interest to note that in a few experiments the sensitivity of taste fell far below that of the litmus papers, the limits observed for the taste being about $\frac{N}{250}$ for acid and $\frac{N}{50}$ for alkali when a drop was placed on the tongue.

In this connection attention is called to a simple and quite useful means of testing very dilute solutions by placing a drop on the middle of the broader papers. By this means the reaction of solutions more dilute than $\frac{N}{25000}$ (1: 500000) H_2SO_4 and $\frac{N}{2000}$ (1: 50000) NaOH could be determined. When the color change was not clearly distinct with one drop, a reaction could still be obtained by placing several drops, one by one, upon the same spot, allowing each one to evaporate before adding the next drop, thus in effect concentrating the solution to be tested. The color change appeared as a spot if the solution was rapidly absorbed or as a small ring if the absorption was slow, the color change in the latter case occurring chiefly at the circumference of the drop. When using this "spot test" it is well to make blank tests with distilled water.

The findings regarding the relative sensitivity of the blue and red papers conform in general with the statements of Dietrich,[5] whose figures for the limits of sensitivity of blue and red litmus papers show that the former are more sensitive.

It is interesting to note that one of the manufacturers stated on the label that the blue and red papers should respond quickly to $\frac{N}{250}$ acid or alkali, and that the neutral paper should respond to $\frac{N}{1000}$ acid or alkali. "Technical" dark blue and dark red papers from the same firm are claimed to respond to only $\frac{N}{100}$ acid or alkali.

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[4] Walpole: "The Use of Litmus Paper as a Quantitative Indicator of Reaction." Biochem. J., 7, 260–267, 1913.

[5] Neues Pharm. Manual, 1913, 73.

Most of the samples were prepared from slightly roughened filter paper, the texture of which varied from a hard, slowly absorbing paper to one that was soft, rough and rapidly absorbing. A paper about midway between these extremes gave the best results, especially in testing very dilute solutions, since the hard papers reacted too slowly and the soft papers absorbed the liquid too rapidly, thus distributing it over too large an area and decreasing the sensitivity of the " spot test."

The thickness of the papers varied from 0.09 to 0.17 mm., usually being about 0.10 to 0.12 mm. In general the thicker and smoother papers did not absorb the liquid satisfactorily. The very thin papers were not sufficiently opaque.

The width of the papers varied from about 5 to 17 mm., usually being about 6 or 7 mm. The broader papers were the most satisfactory, especially in testing the more dilute solutions, since the progressive zone of the color change could be more readily observed or the " spot test " could be better applied.

No experiments were made regarding the effect of the atmosphere, light, and the presence of salts in the paper upon the sensitivity. It is the common experience that laboratory fumes decidedly affect the papers. Light, according to Dietrich,[6] has a harmful influence upon the sensitivity of litmus papers. The presence of foreign salts obviously would have a deleterious effect, due to their effect upon the concentration of the reacting ions, especially if the tests are carried out in such a manner that the solution to be tested is allowed to stand and concentrate on the litmus paper. In fact, it has been observed that in some cases, for example, No. "A," a preliminary washing with distilled water increased the sensitivity of the paper.

Even on the basis of our limited experiments it would seem that litmus papers will prove to be satisfactory if they comply with the following specifications[7]:

Paper: Close formation, firm, medium hard, similar to Schleicher & Schull No. 589 (blue ribbon) filter paper.

Color: Blue—dull or grayish blue. Neutral—dull lavender or pinkish violet. Red—light pinkish red.

Width: About 12 to 15 mm.

Thickness: About 0.10 to 0.12 mm.

Sensitivity: Quick response to $\frac{N}{500}$ acid or alkaline solutions.

Preservation: Litmus papers should be kept in well-stoppered bottles, preferably amber-colored.

THE COLORING MATTER OF EGG-YOLK.

The principal pigment of the yolk of egg belongs to the xanthophyll group of plant pigments. The hen utilizes comparatively little carotin in the coloring of the egg. The same pigments are present in the body fat and blood serum. When hens were fed on food rich in carotin, but relatively poor in xanthophyll, no appreciable influence on the color of the yolks of the eggs was observed. When both carotin and xanthophyll-containing foods were withheld, the tint of the yolks became markedly paler. The color of the flesh and egg-yolks of fowls may, therefore, be controlled simply by giving or withholding xanthophyll-containing foods.—*J. Biolog. Chem.: Chem. Abstr.*, 1916, 10, 627.

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[6] Hager's Handbuch der pharmaceutischen Praxis, II, 268–270, 1907.

[7] Directions for preparing very sensitive litmus papers are given by E. W. Rice, "Laboratory Preparation of Litmus Paper," J. Ind. Eng. Chem., *4*, 229, 1912.

THE U. S. PHARMACOPŒIA THE NATIONAL SAFEGUARD AGAINST ADULTERATION.

BY GEORGE M. BERINGER, A.M., PH.M.

The history and development of the U. S. Pharmacopœia is an interesting subject and is well worth a study by every physician, pharmacist, and chemist. The movement inaugurated by Dr. Lyman Spaulding, of New York City, in 1817, resulted in the publication of the first edition of the Pharmacopœia of the United States. Prior to that time there had been several attempts to prepare a pharmacopœia suited to the needs of certain sections of the country, and as an outcome of these early efforts there had appeared several works accepted locally as authorities. Even in the time of the Revolutionary War the need of such an authority was recognized, and the very first attempt of which we have an authentic record was evidenced in the small pharmacopœia published in Philadelphia in 1778 for use in the American army.

With the growth of each nation there is the corresponding increase of the medical practices, and the necessity for uniformity of medicines soon becomes apparent as one of the problems of national progress. This requires the preparation of an authorized book of standards and formulas, a national pharmacopœia. The United States has been no exception to this law of national progress, and the need for uniformity in the remedies directed by physicians was the inciting cause that led to the production of the United States Pharmacopœia.

Many physicians have not been content to restrict their practice to the prescribing of pharmacopœial drugs and official preparations, but have sought and used a much wider range of remedies. Hence there has arisen in this country the need for still another authorized book of formulas for non-pharmacopœial preparations that are frequently prescribed. That need has been met by the publication of the National Formulary, which has attained the authoritative position of being recognized in the Food and Drugs Act as the companion of the United States Pharmacopœia and equally a legal authority.

The pharmacopœia, as originally prepared, was very little more than a book of formulas approved by the medical profession and voluntarily accepted as the authority by doctors and druggists. Its preparation and publication were without governmental authorization, and for years it was not accorded recognition as a legal standard and authority.

The system of revision adopted for the U. S. Pharmacopœia is distinctly American, and to its very democracy must be attributed the success that has attended the plan. Without any attempt at laudation, we are justified in claiming that the recent revisions of our pharmacopœia compare very favorably with the most advanced and scientific revisions of other national pharmacopœias. It is to its honor and to the credit of American methods that it has gained the distinction of being designated as "the autocrat of the pharmacopœias."

With each revision there has been a marked improvement, and a gradual change in the character of the work can be noted. The pharmacopœia has become less and less simply a book of formulas and has become more and more a book of standards prepared with a definite purpose in view.

It was early seen that uniformity in preparations could not be secured unless the various ingredients entering into the formulas were of uniform quality. This necessitated the formulating of proper standards for every article so used, even though many of these ingredients, such as the common solvents, were not, *per se,* used as medicinal substances.

In the editions prior to the revision of 1880 the drugs of animal and vegetable origin were treated in a rather primitive style, a simple definition in most cases serving as the entire standard. As examples of this earlier form of standard making, the following quotations from the Pharmacopœia of 1870 are cited: "Aconiti Radix. Aconite Root. The root of Aconitum Napellus." "Belladonnæ Folia. Belladonna Leaves. The leaves of Atropa Belladonna." "Coriandrum. Coriander. The fruit of Coriandrum sativum." "Scilla. Squill. The bulb of Scilla maritima." Even elementary descriptions of the macroscopic characters were omitted, and means of determining purity and freedom from sophistication or adulteration were ignored. In a very few cases botanical authorities were given, and in a few exceptions the references for such statements were mentioned. As examples: "Colocynthidis. Colocynth. The fruit, deprived of its rind, of Citrullus Colocynthis (Royle Mat. Med.)." "Senna. Senna. The leaflets of Cassia acutifolia (Delile), of Cassia obovata (DeCandolle), and of Cassia elongata (Lemaire, Journ. de Pharm., vii, 345)." "Santonica. Santonica. Syn. Levant Wormseed. The unexpanded flowers of Artemisia Cina (Wilkomm, Botanische Zeitung, 1872, No. 9)." In the latter is noted the presence of a synonym, which was the exception and not the rule of that revision.

The treatment of chemical substances in these earlier revisions was somewhat better than that of the organic drugs. As late as the revision of 1870 chemical formulas were not given, but the definitions of the chemicals were commonly accompanied by short descriptions and simple qualitative tests for identification and purity.

The revision of 1880 marked a great advance in the character of the book and a distinct epoch in pharmacopœial revision. In that revision the monographs indicate a modern, scientific treatment of the subjects. We are indebted to the convention of that year for the "General Principles to be Followed in Revising the Pharmacopœia." To the successful carrying out of these principles can be attributed the advances then made and which became the foundation for the substantial progress of the more recent revisions, and, moreover, they made possible the acceptance of the United States Pharmacopœia as the leading legal authority for the standards of drugs under the Food and Drugs Act.

Among the important improvements inaugurated in that revision may be mentioned the descriptions of crude drugs; the giving of the botanical name of the drug-yielding plant, accompanied by the name of the author, and likewise the natural order of the plant; the addition of chemical formulas for all chemicals of definite composition; more complete descriptions of chemicals, with tests for identity and purity and in many cases quantitative methods for their assay; the recognition of the principle of assaying of alkaloidal drugs with definite processes for the assay of opium and cinchona.

In the subsequent editions of 1890 and 1900 there were established as additional innovations the purity rubric in chemicals, setting forth in the definitions the degree of purity required; improved methods of assay of chemicals, drugs, and galenicals; adoption of many of the international standards; the extension of the alkaloidal assays wherever possible; and the improved descriptions of vegetable drugs and powders.

In the forthcoming U. S. P. IX, now on press, the purity rubric has been extended to vegetable drugs; and in most cases this rubric will set forth the percentage and character of allowable admixtures. The treatment of organic drugs will show a notable improvement. Here the descriptions have been extended to the microscopical characteristics of the structure and of the powder, likewise with measurements of the structural elements. The methods of assay have been revised and extended, and the limitation of the ash content has not been overlooked. The assaying of chemicals has been extended by giving the most advanced methods, even electrolytic. For certain drugs where chemical assaying is not possible biologic assays have been proposed. Diagnostic reagents and clinical tests are provided for.

The purpose of this necessarily cursory review is to trace the evolution of the pharmacopœia from a book of formulas to that of a book of standards fulfilling the important function of serving as the legal authority for drugs and safeguarding the entire country against adulteration.

One of the earliest acts of Congress, if not the first, recognizing the pharmacopœia as a legal authority, was the act to prevent the importation of adulterated and spurious drugs, approved June 26, 1848. This law named the United States Pharmacopœia first in the list of authorities for " testing the strength and purity " of imported drugs. That law has not been repealed, and, despite the fact that the Federal Food and Drugs Act has superseded many of its important paragraphs, it remains the authority under which the Treasury Department still issues its regulations regarding imported drugs.

When the Food and Drugs Act of June 30, 1906, specified the United States Pharmacopœia as its principal standard for the strength, quality, and purity of drugs, there was some doubt as to whether the U. S. P. VIII, which had not been prepared with the main purpose of serving as a legal standard, would meet the requirements of the law. This responsibility has now been placed upon the Pharmacopœia for nearly ten years, and it appears to have satisfactorily served the purpose. The U. S. P. IX has been prepared with the full knowledge of its official standing as the legal standard, and a comparison of its monographs with the monographs of the previous revisions will demonstrate that throughout every page its character as a law book has received consideration.

It is to be noted that when the Food and Drugs Act was passed no book of standards for the foods was available, and so no standard work was named for determining the strength, quality, and purity of foods. The Department of Agriculture has been attempting to supply this deficiency through decisions, thus arbitrarily fixing standards for certain food products. The act does not specify any standards for foods, nor does it delegate to any department or body the authority to prepare legal standards for these, and so it becomes a grave question if standards fixed by department proclamations are valid or can be enforced as legal standards under the law.

On the other hand, the United States Pharmacopœia, from cover to cover, is a law book for the quality of drugs. Its standards reflect the best thought and ability of the times. There is scarcely any question relating to the quality of the commonly used drug products which cannot be answered, either directly or indirectly, through the information contained in this volume. As a storehouse of useful information it is invaluable to those who would manufacture and deal in medicines. As a rule, its tests are within the means and ability of the average pharmacist. A few of the official tests may require special apparatus obtainable only in laboratories of the larger manufacturers or expert chemists, but there are very few drugs, chemicals, or preparations the purity of which cannot be quickly determined by the druggist with the apparatus and test solutions which should be on hand in every pharmacy and laboratory.

The responsibility for complying with the requirements of the Pharmacopœia is placed upon the individual who assumes to compound and dispense drugs. It is the plain duty of every pharmacist to support absolutely the standards of the Pharmacopœia and to respect and follow the principles and precepts of this volume. It is unfortunate that some of those who are engaged in the drug business have not yet learned of the adequacy of the United States Pharmacopœia and have failed to study its requirements.

The druggist cannot be blamed for following the usual law of trade and seeking to obtain his supplies in the cheapest markets, especially under the conditions prevailing at the present time, when prices are largely speculative. He is, however, negligent if he purchases from irresponsible sources without a guarantee and without himself testing such purchases.

Many of the adulterations that have been reported as practised through such unreliable sources of supply as itinerant pedlers could have been detected by the simplest test laid down in the Pharmacopœia. It is difficult to understand how any druggist could have been deceived by such gross adulteration as the sophistication of boric acid for acetphenetidin and cream of tartar for aspirin.

POSSIBILITIES FOR DISPLACING UNOBTAINABLE MATERIA MEDICA.—THE U. S. PHARMACOPŒIA IX.*

BY S. SOLIS COHEN, M.D.

Professor Solis Cohen contends that the problem of finding a drug that will successfully displace one now unobtainable, or practically so, is not so simple as the mere substitution of sodium for potassium as a basis for iodides, bromides, acetates, etc. As a matter of fact, sodium is preferable in most cases, though there are a few in which the potassium is needed to preserve the ionic balance, or for other reasons. But one cannot get the needed effect of a hypodermic injection of quinine in malaria or pneumonia, for example, from tincture of cinchona, nor the needed strychnine effect from nux vomica. It is just because there is a difference between the medicinal effects of galenicals and the medicinal effects of alkaloids, each having its proper sphere, that the consensus of medical opinion frowns upon the erection of alkaloidal therapy into a cult. Of course, there are some cases in which belladonna may be made to serve the purpose of atropine, and doubtless physicians will bear in mind this suggestion. So far as the coal-tar products are concerned, Dr. Solis Cohen will be perfectly satisfied if acetphenetidin and acetanilide should become permanently unprocurable. While these agents have a field of judicious use in which nothing else will replace them, yet they are so much more abused than used that their disappearance would have a balance of advantage.

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* The paper by Mr. Beringer and the remarks by Dr. S. Solis Cohen have a particular interest at this time on account of the advent of U. S. Pharmacopœia IX. These were presented at a joint meeting of the Philadelphia Branch, American Pharmaceutical Association, and the Philadelphia County Medical Society. The purpose of the joint meeting was largely to consider the present drug situation, causes, means of relieving, etc. There were a number of other most excellent papers and addresses, which have appeared in part. Dr. R. P. Fischelis spoke along lines embodied in his paper published in April, 1916, JOURNAL, p. 411. Dr. Franklin M. Apple reviewed the market conditions of the past two years. Dr. John R. Minehart referred to many native drugs that are available. Prof. C. H. LaWall spoke of the large commercial consumption of drugs and chemicals in manufacturing as causes of scarcity, and the need for revision of our patent laws. Dr. Horatio C. Wood emphasized the latter statement, and indicated that the difficulties arising through unobtainable drugs were not nearly so serious as some contend; that some, at least, could be advantageously displaced.

A physician who prescribes intelligently, and has a reason for each drug and each preparation that he employs, will find it as difficult to alter his habits of prescribing as he would in going back from the automobile to the ox-cart or shank's mare as a method of locomotion. When one must, he must, but not otherwise. The tariff has no bearing on the question. Our idiotic product patent is the chief trouble.

Regarding the U. S. Pharmacopœia, now happily drawing near to publication, the speaker characterized it as a super-excellent work in every respect, except that as Chairman of the Sub-committee on Scope, he could not very well praise or blame this portion of the work. Two extreme views were urged upon the Committee of Revision. One looked upon the Pharmacopœia as a text-book, and required it to omit every drug that had not been proved by laboratory experiment to be of therapeutic value. The supporters of this view probably overlooked the fact that to carry it to a logical conclusion would leave nothing for the Pharmacopœia but salvarsan and water, since every other drug derived much of its therapeutic value from properties incapable of pharmacodynamic demonstration, and, as salvarsan is patented, that, too, would be excluded. Apart from this, however, the departure was too radical to be undertaken suddenly. Other extremists desired to include everything that had ever been used as medicine at any time in the history of mankind by physicians, charlatans, or old women. One group corrected in large measure the extravagances of the other. While the speaker personally would have preferred to see the Pharmacopœia somewhat more opulent, and also might have wished some things omitted that have been included, the selection, on the whole, is a fair representation of the consensus of medical and pharmaceutic opinion.

Mr. Beringer laid his finger upon the crux of the situation in saying that the Pharmacopœia, from cover to cover, is a law book. A law book must not represent your whim or my whim, but the necessities of the community. The scientific work—botanic, chemic, pharmaceutic, and biologic—is probably superior to anything done in a book of this kind before. Future revisers have had their work made very easy in comparison with that which fell upon the present committee.

COMPARATIVE TOXICITY OF VARIOUS PREPARATIONS OF MERCURY.

The toxicity of the various mercurial salts is directly proportionate to the amount of pure mercury contained. The average relationship as to the toxicity between the intravenous and intramuscular administration of mercury in general is about 4 to 1. The insoluble preparations, such as gray oil, are absorbed at the rate of a little over 1 percent of the injected amount per day. Even at the end of six or seven weeks almost 50 percent of the mercury of insoluble preparations may be unabsorbed at the site of the injection, hence the injection of the usual doses of insoluble mercurial compounds at weekly intervals must invariably lead to accumulation of the drug in the tissues.—J. F. Schamberg, J. A. Kolmer, and G. W. Raiziss (Journ. Cutaneous Diseases, N. Y., December, 1915, through Journ. Amer. Med. Assoc.).

CHAPARRO AMARGOSA IN THE TREATMENT OF AMŒBIC DYSENTERY.

P. I. NIXON, M.D., SAN ANTONIO, TEXAS.

In former reports [1] I outlined the treatment of twelve cases of amœbic dysentery by the use of chaparro amargosa. As reported in a footnote,[2] there was a recurrence in Case 9, and the patient has continued to have trouble from time to time. This patient, I believe, has not been sufficiently treated; I have communicated with him by mail, and find that he keeps a supply of chaparro amargosa on hand, and when his trouble begins he treats himself, leaving off the treatment when his symptoms have subsided. So far as can be determined, all the other patients, including the patient in Case 10, have remained well for from two to four years.

Other patients have been treated, and the results have been no less satisfactory. The present brief report has to do with the results obtained in a single case; it seems worth while to put this case on record in that emetin (alkaloid) administered hypodermically every day for five months had not altered the course of the disease. The emetin used was obtained from several different sources, and was prepared by two or three drug firms, so that its potency can be taken for granted. The effect of chaparro amargosa in this case was not so immediate or so magical as that brought about in most of the other cases, but the improvement has been sufficiently rapid to justify the belief that the excessively chronic and obdurate cases of amœbic dysentery can be controlled by the use of chaparro amargosa.

REPORT OF CASE.

History.—W. D., an unmarried man of fifty-six, of previous good health, developed diarrhœa in April, 1914, eighteen months before he was seen. A few weeks later dysentery with the passage of a great deal of blood and mucus began. The frequency of the bowel movements has varied from five to thirty times in twenty-four hours, and at no time since the onset have the bowels moved less than five times. Abdominal pain, tenesmus, vomiting, slight fever, weakness, and general malaise have been accompanying symptoms. The appetite has been fair at times and again it has been very poor. The patient's weight has decreased from 205 to 148.

During the first year, various remedies were used. In March, 1915, emetin was begun and was given hypodermically in one-half grain doses every day till the latter part of July. From August 1 to October 1 other drugs, including quinine by rectum, were tried. From October 1 to November 10, emetin was again used, 1 grain being given every other day. The patient came to me November 11, 1915, the day after his last dose of emetin. At that time the bowels were moving from fifteen to twenty times a day.

Physical Examination.—The loss of weight was obvious. The skin was flabby and the mucous membranes pale. General examination was negative. In the left iliac fossa the sigmoid was palpable as a tender elongated mass. A stool passed in the office was practically pure mucus and blood, and contained many active organisms of *Endamœba histolytica* and *Cercomonas intestinalis*. A striking characteristic of the stool was the extreme tenacity of the mucus; it was possible to raise the entire stool on an ordinary toothpick.

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* Reprinted from Journal A. M. A., March 25, 1916, p. 946. One of the reasons for reprinting this paper is to show that there are American drugs which may prove valuable additions to the materia medica.

[1] Nixon, P. I.: Chaparro Amargosa in the Treatment of Amœbic Dysentery, The Journal A. M. A., May 16, 1914, p. 1530; *id.*, Am. Jour. Trop. Dis. and Prev. Med., 1915, ii, 572.

[2] Nixon, P. I.: Chaparro Amargosa in the Treatment of Amœbic Dysentery, Am. Jour. Trop. Dis. and Prev. Med., 1915, ii, 572.

Treatment and Course.—After a preliminary dose of Epsom salt, a glass of fresh infusion of chaparro amargosa was given by mouth four times a day and a quart of the same infusion was introduced into the rectum in the knee-chest posture once a day. For three or four days improvement was only slight. At this time I noticed under the microscope that all unattached amœba in a particle of stool, to which the infusion had been added, were killed, while those embedded in the tenacious mucus were still active. With the idea of removing as much of this mucus as possible from the intestine, a preliminary rectal irrigation of sodium bicarbonate, 1 ounce to the quart, was used; after this was expelled the usual injection was made. Under this plan blood and mucus no longer passed, but the patient continued to have from three to five soft movements a day. Calomel, one-tenth grain, was given every hour for ten hours after the method of Freund, and continued for several days; the bowels moved from one to three times a day, assumed a semisolid consistency and no longer contained the cercomonas. At the end of ten days the patient felt quite well; his appetite was ravenous; he could eat anything; he was having from one to three semisolid bowel movements a day; he had gained 10 pounds in weight and had improved in every way. He was seen a month later and his improvement had continued despite the development of a very large ischiorectal abscess; bowel movements were normal in frequency and consistency.

COMMENT.

I appreciate that it would be easy to criticize the dosage and particularly the duration of emetin treatment in this case and to suggest that no conjunctive amœbicidal irrigations were used. The fact apparently is that this case would not have responded to emetin if its administration had been differently carried out. Obstinate cases have been reported; for instance, Low,[3] as late as November, 1915, wrote:

> Though practically all cases of amœbic dysentery respond quickly to emetin treatment, there is a small residuum—in which there has been no doubt of the correctness of the diagnosis—which does not, symptoms continuing and amœbæ, vegetative and cystic, being still found in the stools. Such cases require further careful study to explain this anomaly.

No one who knows how prone this disease is to recur would be willing to contend that in the case here reported the patient is permanently cured. All that one can say is that he is clinically cured and that no amœbæ, vegetative or cystic, can be found in the stools.

My own experience with emetin has been quite limited; in no case of amœbic dysentery have I felt the need of it. Chaparro amargosa, on the contrary, I have used repeatedly, and its effect has been unfailing. At the present time, when the price of drugs is almost prohibitive and with prospects for still greater increases, it is pertinent to state that the supply of chaparro amargosa is well nigh inexhaustible.

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[3] Low, G. C.: The Treatment of Amœbic Dysentery, Brit. Med. Jour., November 13. 1915, p. 714.

SHOULD THE DRUGGIST KNOW THE NATURE OF SUBSTANCES HE DISPENSES?

F. J. PERUSSE.

> While the following article is composed largely of a series of questions, it brings out important thoughts from the active life of pharmacists. Several of these questions, though not new, are worthy of consideration by associations. *Confidence* is an important factor in every activity, in fact is one of the essentials of business and must be passed along. It is impossible for the average pharmacist to test all the materia medica he handles; if this were necessary, it would certainly reduce the volume of his business and increase the overhead expenses. The reliability of our pharmaceutical and chemical manufacturers is of a high quality, and contributes to the efficiency of pharmacists. The error that is cited in the article, or similar one, may occur, but so rare are these occurrences, that they are impressive because they are unusual. It is almost impossible to employ the same care, in the average pharmacy, for the prevention of errors, as is imperative in manufacturing establishments. What the retailer rightly says to the consumer, "Know whom you are dealing with," is applicable in buying.—EDITOR.

What should the druggist know about the physical and chemical properties, or the probable adulteration of, or the constituents of, preparations he is dispensing?

Some time ago the author was discussing this subject with a local druggist in connection with adulteration of aspirin recently brought to light in this state. A number of druggists had been selling aspirin powder and tablets, adulterated with acetanilide; whether or not they were ignorant of the presence of the latter has not been determined. In this instance, should the druggists have known that they were dispensing an adulterated product? The local druggist said he thought that all these men were innocently dispensing this adulterated article. He further stated that it should not be necessary to examine everything for probable impurities, or to test the strength of each preparation before dispensing it. He said, "If a druggist did that, he would never get anything else done."

Why, then, is it necessary to incorporate into the Pharmacopœia certain tests and assays? Are they simply put in for the benefit of instructors or students in pharmacy, or for those who see to the enforcement of the food and drug law? It seems to me that at least the qualitative tests should be applied, by the pharmacist, to see if his stock meets with the requirements of the Pharmacopœia; or prove the absence or presence of impurities in substances not official.

A few substances could be examined during spare moments, until all the stock had been gone over. Some druggists contend that the way of getting out of doing all this work is to buy from some reliable firm. The author has experienced that the policy of depending on substances from a reliable firm did not always hold good, when he had occasion to help a young man in the calcination of calcium carbonate in the preparation of pure calcium oxide. We placed what we considered calcium carbonate in an electric muffle, and heated it for a length of time which we judged would be sufficient for all the carbon dioxide to be driven off. But we found it responded positive to the carbonate test, and again, after further heating;

then we analyzed some of it and found it to be sodium carbonate. On examining the label of the container it was found to be labelled calcium carbonate. It also stated the presence of impurities and the amount. Other containers similarly labelled also contained sodium carbonate.

As for examining galenicals, etc., even if bought from a reliable firm, how many of these drug houses will guarantee the strength of a preparation after the container has once been opened? Will they be responsible for its strength until it is all used up? If a druggist dispenses a deteriorated product, is he not guilty of dispensing an improperly labelled product? And how about preparations which you cannot buy from a reliable firm? Another druggist raised this question, " How many druggists do you suppose are capable of doing this kind of work "? Some can not, others can and don't.

College of Pharmacy, University of Nebraska.

THE McNEERY METHOD FOR PREPARING " MILK OF MAGNESIA."

Wilson W. McNeery, at one of last year's meetings of the Philadelphia Branch of the American Pharmaceutical Association, presented a formula for making " milk of magnesia " based on the formation of the suspended magnesium hydroxide in the reaction between sodium hydroxide and magnesium carbonate, and this method has received the recognition of the Revision Committee of the U. S. Pharmacopœia IX.

The reaction between magnesium carbonate and sodium hydroxide is given, and the further calculations are made for arriving at the quantities needed of the *official* chemicals for making a magma containing 40 grains of magnesium hydroxide in one fluidounce of preparation. The calculations develop that in order to have a preparation holding in suspension 40 grains of magnesium hydroxide in a fluidounce is the equivalent of 5120 grains in a gallon, and for this production 9212.46 grains of U.S.P. magnesium carbonate and 6256.08 grains of U.S.P. sodium hydroxide are required and hence constitute the formula for the preparation.

The manipulation is given by Mr. McNeery as follows:

Place 9212.46 grains of magnesium hydroxide in a mortar and triturate with sufficient water to make a smooth mixture. Dissolve 6256.08 grains of sodium hydroxide in sufficient water to make 32 fluidounces of solution. Add the latter solution to the former mixture; pour into a large container and wash by decantation or syphoning until the supernatant liquid is neutral to litmus. Then allow the precipitate to subside until its volume is one gallon, withdrawing the liquid above.

If a slight excess of alkali is used for the reaction, and the precipitate is carefully washed, the product is practically free from carbonate. The product is smooth, white and creamy.

COMMENCEMENT.*

For a long time I did not know what the term "commencement" meant. I took a personal part in a commencement at the end of my grammar school course, in another at the end of my high school course, in still another at the end of a business course and in three others at the ends of three collegiate courses. Not until the time of the commencement at the end of my first collegiate course did I really understand what the term meant. No one had explained it to me before and I had not given the term any special thought. Because commencement always came at the end of a course, I took it that the term was a sort of formal one describing the usual functions attending the end of a course of study. It did not occur to me at the time that the end of one thing was the commencement or the beginning of something else.

This occasion is a commencement. It also comes at the end of a course; your course in the College of Pharmacy of the University of Illinois. If the term "commencement" is a correct one, then it should mean what it designates. And it does. It is a commencement—a commencement of what? It is the commencement of a very important if not the most important period or era in your lives—the commencement of your professional career; the commencement of that period which will determine your success or failure in life, your usefulness or the reverse to yourselves and to your fellows; the period in which you first are released from the guidance, direction and discipline of your teachers and in which you are thrown upon your own resources, are left almost wholly to your own ambitions or lack of them; the period in which the responsibilities of others in you cease very largely or altogether; the period in which you assume greater duties, privileges and responsibilities than ever before; the period in which you will begin to realize or fail to realize the ideals which it is fair to assume you have already formulated and cherish; the period in which you will succeed or fail in applying the teaching and training you have enjoyed; the period, in short, in which each one of you enters the arena of life and the estate of full membership in your calling and in society. This occasion is therefore the commencement of the critical period of your lives.

I regard it as a distinct privilege to have the honor of addressing you at the beginning of this serious time in your lives. You will pardon me if I record that this is my twenty-fifth commencement address. Twenty-five times now I have had the good fortune to speak to young men and young women of the great opportunities and privileges of life. It is also my good fortune to have the knowledge that many of the things I have said and advocated on occasions like this have led to a satisfactory fruition in the subsequent lives of many young entrants upon our beloved calling. On all of these occasions, except one, I have spoken extemporaneously and informally, usually because of lack of time to commit to paper the thoughts that the occasions suggested, but at last I have found the time, or, to state it more correctly, have made the time to put into more permanent form one of the messages I have to graduates.

WHAT IS LIFE?

Let me ask: What is life? First, it is our most precious gift from on high. It is our most precious privilege and opportunity. We have heard it said, "The world owes us a living." Not so! Not so by any means! Each one of us owes the world our life. We are in debt for our lives and our first and foremost duty is to recognize this debt and to discharge it. It takes a lifetime to discharge it. Look forward! What shall we say in the balancing of accounts "when the summons comes to join the innumerable caravan"? Shall we then look back with regrets or with rejoicing? You are to determine upon the affirmative answer now if you have not already done so. Your preparation begins now, at this moment, and it should continue with every moment while you are here on this mundane sphere. You are in the onward rush of life and you cannot afford not to improve every single moment. Every moment rightly and unselfishly used helps to balance the debt of life you owe the world and your fellows.

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* An address delivered at the graduating exercises of the University of Illinois College of Pharmacy, at Chicago, April 26, 1916, by Dean Frederick J. Wulling, University of Minnesota.

THE LAW OF BALANCE.

In this connection let me bring to your minds as forcibly as I can the law of balance. Meditate upon this law. Read the Scriptures of all races and of all civilizations upon this law. This law is variously stated but its principle is the same, unchanging and eternal. One version is: "Do unto others as you would have others do unto you;" another: "As ye sow so shall ye reap;" another: "Cause and effect are eternally inseparable." It is also called "The law of compensation" and "The law of action and reaction." Divine teachers, philosophers, poets and more humble folk have recognized and expounded this law in all ages. It is fundamental, immutable and inviolable and from it there is no escape. It is a spiritual and a moral as well as a natural law. It is divinely appointed for your benefit and mine. It reigns supreme, but it is just. By its virtue you are the centre of your world, the creator of your worldly success or failure; of your environment; of your development or the reverse. By it you are your own judge; it recognizes no chance or luck or accident; by its wise employment you grow and prosper and gain power; ignorance of it accounts for all the negative conditions of life; by it you overcome temptation and thus gain the power the temptation had, or you are overcome by temptation and lose power and strength by that much; by your choice and by its operation you become selfish or unselfish, wise or foolish, self-reliant or dependent, gentle or brutal, tolerant or critical, cultured or coarse, beloved or hated, industrious or indolent, healthy or ill, free or fettered, master or slave, creditor or debtor, strong or weak, humble or proud, respected or despised, inspired or dull, illumined or deadened, brave or cowardly, victorious or defeated. By this law Emerson's statements, "The one base thing in the universe is to receive favors and grant none" and "The benefits we receive must be rendered again, line for line, deed for deed, cent for cent, to somebody in some way," become clear. By this law, in short, you become the beneficiary of the priceless means of largely shaping your destiny.

If this law is true, and it is, men and women are its trustees and administrators; hence what a wonderful thing a human being is; how wonderful and inexpressibly great is its endowment! Its power is greater than that of any other of God's agencies. Have you ever realized how divinely endowed you are for self-help? Think for a time on this. Think of the scope and breadth and magnitude of human achievements and human institutions. Think of what man has accomplished by the conscious and unconscious employment of the law we are discussing. Each of you will then realize as a member of the brotherhood of man how indescribably great are the capacities and powers inherent in each one of us. This realization will force upon us the conclusion and conviction that we are bound to dedicate our lives to the greatest privilege in the world—affirmative, helpful, efficient service to man and hence to God our Father and the Author of all.

Commencing with this realization and conviction and with the dedication of our powers, our work and our very selves to this service, our usefulness in the world and the outcome of our lives and careers cannot be in doubt.

HOW SHALL WE PROCEED?

Now coming to the concrete and specific, by what formula or direction shall you proceed? You have had, I take it, an adequate training in the theory and practice of pharmacy. I will not review the technical, professional training you have received. The personnel of the faculty which directed your study deprives you of any excuse of insufficient information or training in the technic of your calling to enable you to begin that period of your development in which you are to apply your theory to practical and useful ends. But having studied diligently and industriously you have not yet done your full duty. I am in full accord with Epictetus, who says: " Do you think I shall call you industrious because you pass your nights in studying and reading? By no means. I must know what is the object of all this study. If you are working for glory, I call you ambitious. If you are working for money, I call you avaricious. But if you study in order to cultivate and form your reason, to accustom yourself to obey the laws of nature, to fulfil your duties, then only will I call you industrious; for that is the only labor worthy of a man."

A UNIVERSAL PRESCRIPTION.

Mere study and the acquisition of knowledge and information is not sufficient. The formula includes many other ingredients. You have dispensed some medical prescriptions and will dispense many more. The prescription I will give you is not such a one and will require your lifetime to dispense. The prescription is this:

℞. The measure of a life time of efficient and loving service to your fellows.

Dispense according to the art of living.

It appears at once that this prescription can be compounded by anyone whether a pharmacist or not who lives a reasonable length of time. All men and women, whatever their walks in life, ought to fill or ought to endeavor to fill this prescription. They are compounding some sort of a life. I mean to imply that it is the duty of the pharmacist to live commensurately as full and useful and affirmatively and beneficently serviceable a life as anyone. The ingredients of the prescription are the same whoever compounds them and they are as free and universal as the air and sunshine. They may be appropriated *ad libitum.* They should be compounded according to the directions: misce secundum artem vitae—compounded not according to the art of pharmacy but according to the art of living, for life is an art; some say it is a fine art. You are skilled or soon will become skilled in the art and science and practice of pharmacy, but you must also become skilled in the infinitely greater and more universal art of living rightly. Pharmacy is only a part; life is the whole, or at any rate, a greater part. This life may be a preparation for an immeasurably higher activity, as your college years have been a preparation for your coming larger mundane life. Who knows? It would be only natural if it were so. This prescription, then, is to be compounded according to the rules of the art of living and of wisdom. What are the important ingredients? Some of them come to me in the following order: honesty, integrity and morality, intelligence, self-reliance and good character, faithfulness, earnestness of purpose, industriousness, perseverance, patience, kindness, generosity, tactfulness, courage, energy and promptness, accuracy and thoroughness, method, wise economy, resistance to temptation and evil, good manners, refinement and culture. Above all these I place godliness, cleanliness, love, hope, faith and charity.

I have called these components "ingredients" to remain within the idea and figure of the compounding of a prescription but in reality they are *qualities;* qualities inherent in all of us, and qualities more or less dormant or active in each of us according to our respective degrees of development and which in their totality constitute *character and capacities,* and these latter all thoughtful and wise persons cherish most highly and seek ever to develop more fully.

THE WORLD IS A LABORATORY.

Where shall these ingredients be compounded? Shakespeare says, "All the world's a stage." This gives me liberty to say, "All the world's a laboratory in which life is in the compounding." Wherever we may be or whatever our circumstances may be we all are in that vast laboratory and in it we can compound largely as we please, subject to the law of balance we have already discussed. It is our privilege to choose either wisdom or ignorance as our guide. If we choose rightly we make of the law of balance a law of success and make of the world a vast agency of success. Because success is in the nature of men and things, the right compounding in this world's laboratory is not at all difficult. Most of the difficulty is overcome in the recognition of the possibility of developing the ingredients I named *in our own selves.* The quantities of the ingredients and therefore of their product depend upon their development within our own selves according to our volition, willingness and determination.

In your course in pharmacy you learned much about the ingredients of medical prescriptions. Time will not permit me to tell you all about each of the ingredients I mentioned as entering into the universal prescription I gave you and at which you will continuously compound during your lifetimes, but I can and will tell you something about some of them.

I mentioned first *honesty, integrity* and *morality.* There is a voice within us whose counselling we should regard. I mean our conscience. It is the tribunal which decides for us unfailingly; it approves or condemns. Our moral sense decides for us between right and wrong, between lawfulness and unlawfulness. It is our supreme court. Its decisions are infallible and instantaneous. We should not deny the dictates of our conscience; rather should we appeal to the voice when it is silent. If we follow it we will of necessity be moral and honest. We should be honest not simply because Franklin or someone said, "Honesty is the best policy." That would be utter weakness. If we were honest only because it seemed politic to be so our honesty would not be trueness. We would then not hesitate to be dishonest if it seemed politic for us to be so. Let us be natural; it is natural to be upright, moral, honest, and unnatural to be otherwise. In whatever we do we should have the approval of our conscience.

SELF-RELIANCE.

The next ingredient I mentioned is *self-reliance.* The self-reliant are their own sufficiency. We ought to rely first upon ourselves—"Heaven helps them who help themselves." We have largely the power to be what we will to be. The sum of the experience of men points to self-reliance as the greatest factor in the success of the individual; and the success of the individual becomes that of the nation. Reliance upon others is an indication of weakness and is enfeebling; reliance upon one's self is invigorating and stimulating. If we need the help of others, we should seek the guidance, and perhaps government, of those only who are mature in experience and wisdom. Growth and progress are best insured by the exercise of our inherent powers. We should rightly appreciate our powers and cultivate and develop them. All really great men have become such largely through the perception and development of their own powers. Knowledge and conviction of our inherent powers stimulate us to attempts which we would not otherwise make. To be self-reliant we must recognize the powers naturally ours. We must do for ourselves, and above all we must think for ourselves. We must be able to respect ourselves. Let us look to the culture of our character as well as to the development of our intellect and skill. It is folly to rely upon institutions or persons to do this for us. The institutions of men, educational, governmental, social or business, can give us no active aid. The best they can do is to stimulate us to help ourselves. But if our self-reliance has led us to success, as it must, we must not permit our independence to make us haughty or arrogant. We would then have descended from our lofty pedestal of wisdom to the depths of vain pretension.

INDUSTRIOUSNESS.

Industriousness is another essential part of the prescription. Let our industriousness be well-directed. Self-reliance cannot be practiced without industriousness. Industriousness has built empires—with it we can build ours. Wisely directed industriousness lands us in the haven of material prosperity. Nor should it deprive us of pleasure and enjoyment—these are concomitant with industriousness and are its offspring. While we should be industrious, we should never drudge. We surrender our claim to wisdom if we drudge. Nor should we fuss or fidget or dawdle. We can never afford to be so extravagant with time. Time is Nature's stock, and it is our capital. We must learn to appreciate the value of time, to improve its moments. A lifetime is a vast aggregation of moments. Napoleon said that every lost moment gives an opportunity to misfortune. Moments demand to be rightfully used.

Industriousness does not mean constant work or occupation merely; it means wise and judicious employment of moments, hours, years, lifetimes. Let our application be of the kind that is fruitful. Never should we debase our powers by putting them to unprofitable, unremunerative, unavailing, dishonest, vain or useless employment. To be industrious with healthy, profitable pursuits is to become trained and disciplined as you could not become by any other agency. The element of progress for both the individual and the State is fruitful, congenial industriousness. I would rather that you have a hobby than that you be idle, but make your hobby bring you entertainment or instruction, or both. Successful careers depend upon judicious industriousness.

PERSEVERANCE.

Perseverance is another of the primary ingredients. If our purpose is just and wise, we should pursue it to the end. If we are self-reliant and industrious, we must as well be persevering. That fortune is usually the reward of the industrious disproves that fortune is an accident.

Industry through the quality of perseverance ripens into prosperity. Perseverance is a quality to be cherished. If we have it not, we should acquire it. We should persevere until we will have acquired perseverance. With it we overcome, without it we are overcome. Continuity of application to a just and worthwhile purpose gives success its birthright and makes failure impossible. We need not be geniuses to become successful. Genius annihilates time in acquiring, doing and accomplishing. Given other equal qualities, perseverance will do what genius does—only it needs more time. Some geniuses have developed through perseverance and application, but the world does not then call them geniuses. You can become a genius by the slow process, employing the agency of perseverance. Newton worked out his discoveries "by always thinking unto them." Keppler brooded with the whole energy of his mind upon his subjects. Watts and Stephenson taught themselves chemistry, arithmetic and mechanics during their leisure moments. Their perseverance gave us the steam engine and the locomotive. Had Columbus been less persevering and persistent, civilization might not now have America. Scheele, Priestley, Dalton, Davy and millions of others benefited themselves and the world by their persistent application to purposeful ends. An assiduous cultivation of knowledge and of skill is a solvent of most obstacles. Accident and so-called blind fortune are not breeders of success; wise and persistent industry and faithful application are. Let us resolve that not a day shall pass in which there will not ripen a fruit of our perseverance. The limit of our accomplishments and achievements is measured by the limit of our painstaking and perseverance. Excellence is the end of perseverance.

PATIENCE.

Patience is another ingredient that we must compound into the prescription of life. Patience is a conqueror. There is this difference between perseverance and patience: the one is active, the other passive. Perseverance is continuous *doing,* patience is continuous *waiting*. He who sows must wait in patience for the harvest. Impatience never hastens nor accomplishes anything. Patience is the power that awaits results calmly, cheerfully, hopefully. Patience is an exhibition of faith in the order of things. The wise are patient in all things. Patience waits, overlooks, excuses, forgives, composes, endures; is not hasty, nor provocative, nor revengeful, nor uneasy, nor discontented. Patience is unselfishness, sacrifice, liberality, generosity, magnanimity. To know how to be patient is to know how to overcome.

KINDNESS.

Kindness is another ingredient. True kindness is voluntary. Conduct toward others is the criterion by which men are judged. Courteous behavior brings pleasure and regard. Respectfulness, civility, politeness are good qualities to possess, but kindness is their superior. They spring from the intellect, kindness from the heart; they may be artificial, feigned; kindness is always natural and sincere. Kindness is voluntary, spontaneous; it succors, relieves, sympathizes, pleases, supplies. Kindness creates good feeling, gratefulness, happiness. It springs from the deep recesses of the nature in which love has its origin. It gives and expects no return. Kindness is benevolence, charitableness; it is good-will to all. Kindness elevates, refines, dignifies; abolishes rudeness, vulgarity; establishes harmony. If you are kind to others you are kind to yourselves. Be not sparing with your kindness.

TACTFULNESS.

Of the ingredient *tactfulness* let me say: The tactful precede action by inquiry. To be diplomatic is to be superior. He who has tact has a faculty whose exercise brings harmony. Tact discerns, discriminates, selects the best. Tact knows what and when and how to do. Tact adjusts, constructs. It is the means whereby to remain out of avoidable trouble. It is the exercise of common sense. Diplomacy is cleverness, quickness, sagacity in dealing with your fellows. Diplomacy adjusts what temper would upset. It wins by peaceful means. If our adversary must be overcome, let diplomacy be the weapon of our defense, but let us use it honestly. Let our victory consist in convincing our adversary of his error. Tact never offends. Diplomacy seldom fails.

COURAGE, ENERGY, PROMPTNESS.

Among the ingredients I mentioned *courage, energy* and *promptness*. The courageous inherit the world. Audacity is not courage. The stimulating quality of courage never disappoints. Courage grows out of conviction and knows not fear. If we are convinced that we are right, we should proceed upon our purpose, but let us make no error as to the quality of our conviction. The quality of conviction must be single, must be sure. We should be courageous not spasmodically, but continuously. That strength of mind that enables man to encounter danger with firmness is not the only species of courage. There is another kind—the kind that is the source of patience in enduring, of forbearance under injury, and of magnanimity in all conditions of life. The former is valor, the latter fortitude. Let us cultivate both and exercise them as occasion may necessitate, but without complaining.

Active *energy* is akin to courage. Courage without energy may fail ere its purpose is fulfilled. Our energy should insure the continuance of our courage. Energy gives emphasis to purpose; it is our inherent power of vigor, strength, force and life. To be without energy is to be enervated, weak, feeble, effeminate. If we allow our energy to lie dormant, latent, we are unpardonably wasteful and foolishly extravagant. If our courage and energy have led to resolutions, let action follow swiftly. Promptness is never behind time. The courage that begins to-morrow when it should set to work at once dies of inanition ere the morrow comes. Promptness is quickness of action following decision—it is recognition of the value of time. Our promptitude should not be only of the kind that stimulates our courage into quick operation in the suddenness of vicissitudes, but it as well should characterize our behavior in the execution of the many little things that come to us for administration. Courage, energy, promptness, are rapid means with which to overcome.

ACCURACY AND THOROUGHNESS.

Accuracy and *thoroughness* are among the primary ingredients I mentioned. Accuracy is permanence. The result of thoroughness is perfection. One cannot be accurate without being thorough. Accuracy leads to permanent results. Thoroughness is a parallel means to the same end. Accuracy is precision, correctness, nicety, without which the practice of any vocation is failure. Inaccuracy is error and serves no purpose. Take time to be accurate. Thoroughness is completeness, reliableness; it is something to be depended upon. It is not halfness, but wholeness. Things worth doing at all are worth doing accurately and thoroughly. The doing of things not worth doing thoroughly is often waste of time and energy. Superficiality never leads beyond the obvious and apparent; it never penetrates. A little knowledge of an exact nature is invariably more valuable for practical purposes than a smattering of much. Be accurate in your speech, your methods, your doings. Accuracy and thoroughness are the roadways to profundity.

METHOD.

Concerning the ingredient *method* let me say: To be methodical is to be wise in the manner of doing. To be executive is to be wisely administrative. Man is born to have dominion. His dominion makes of him an executive, and if he fails in wisely administering the affairs of his life and condition and vocation he becomes dominionless: a sorry spectacle to behold. Direct and execute your affairs wisely that you may prosper. Wisdom is many things—it is the employment of method in the manner of doing. With method there is order, without, confusion. Method is wise economy. Method facilitates.

WISE ECONOMY.

The ingredient *wise economy* is worth a line or two: Economy in all things is wisdom. Economy does not mean to undergo privations to save and hoard money. That is blindness and extravagance called parsimony. Economy is wise management, judicious regulation and competent government of our affairs and things. It not only includes a prudent and conservative management of all means whereby money and property are obtained, but also a judicious application of talent, knowledge, skill and time. Economy increases money by spending it to advantage; it demands a fair return; it incurs no waste. We can afford to be economical in an extravagant way. It is the only kind of extravagance we should not deny ourselves. Economy delivers from helplessness, from dependence. To be economical with our time is to fill our moments with profitable industriousness; to be economical with our dollars is to use them judiciously and in a way that will make them bring us competent return. Economy saves and produces.

GOOD MANNERS AND REFINEMENT.

The ingredients *good manners* and *refinement* should not be overlooked. Our manners and our culture are our proclaimers. Our manners are our colors by which we are known. They are our showing-forth; the measure by which we are judged. Manners define the quality of our conduct; they exhibit our way of deportment. Our manners should interpret civility, courteousness, decency, respectfulness, and natural dignity in work and play. Our manners are our true portraits. The manners that we possess should have the qualities of culture and refinement behind them. Culture is inherent; manners are its expression. The one is subjective, the other objective. Culture begets manners. He who has good manners is always at his ease. The mannerly find open doors.

TEMPTATION AND EVIL.

I will next remind you of the necessity of *resisting temptation* and *evil.* There is much of the negative in the world. We are often tempted to do what upon reflection our conscience will forbid. Our character and our fortitude are often sorely tested. It is easy to yield, but think of the regrets and the remorse that will surely overtake us. It may take years or a lifetime of remorse and possibly of suffering to balance a temporary wrongful gratification of the senses. We should ever remember that the penalty is certain to follow the infraction of the moral law, as effect is certain to follow cause, but we should resist evil not merely for fear of consequences but rather because the high standards and ideals we have set for ourselves prompt us to have nothing whatever to do with evil. By the fixing of high ideals and a firm determination to realize and maintain them we can shut out from our lives all evil and degradation.

SUPERIOR QUALITIES.

For *godliness, cleanliness, love, faith, hope* and *charity,* I refer you to the Scriptures of the world. We should ever bear in mind our divine origin and our duty to our loving Father to whom we owe all our blessings. By recognizing the brotherhood of man and the Fatherhood of God we can direct the compounding and the living of our lives as our Master would have us do.

CONCLUSION.

In conclusion let me say: If you aim to be true men and women in the fulness of perfection you must be true to yourselves, true to your neighbors and true to your God. There is a power within you that is your means. Through it each one of you should strive toward a *personal nobility.* You are endowed with faculties that are capable of creating for you things that are greater than you have ever dreamed of; but they need development, training and application. There is hardly a limit to the possibility of achievement. It matters not what vocation you follow; the possibilities are the same. Start from wherever you are. Your best thoughts and actions wisely and willingly carried out will find for you the place in the ranks of men in which you can be of the greatest usefulness and service to your fellows, and that is a fortunate and beneficent destiny short of which you should not be satisfied: an earthly destiny which I most sincerely wish for all of you.

THE EARMARKS OF A GOOD EXAMINATION QUESTION.

BY C. B. JORDAN, PH.C., M.S.

The preparation of a good set of examination questions is not an easy task, and it is especially difficult for members of State Boards of Pharmacy, because they have to cover a whole subject with a few questions. The difficulty that here confronts the board members is well understood by teachers, because they are meeting it day by day in their work. The writer fully realizes the difficulty of the task and sympathizes with the one who has it to perform, therefore this article is not written for the purpose of criticising board questions, but with the hope that it may contain some helpful suggestions.

To my mind there are several requirements that a question should meet in order to be a good examination question, to wit:

1. Questions should be definite.
2. Questions should be practical.
3. Where possible they should test reasoning power rather than memory.
4. They should not be questions the true answers to which are impossible with the data given.
5. They should not be questions that can be answered by "yes" or "no," without explanation.
6. They should not suggest the answer.
7. They should not contain or imply an incorrect statement of fact.

The question should be definite: When a question is presented to a hundred different applicants, there are a hundred different minds interpreting it in a hundred different ways, if this be possible. All teachers have been surprised by incorrect interpretation of their questions by students who have been under their personal instruction and who were familiar with the ground to be covered by the examination. This is much more likely to be the case when a question is presented to applicants who are strangers to the examiner and are therefore unfamiliar with his method of asking questions and not acquainted with the ground the examiner wishes covered by the question. For this reason a question should be asked in such a way that there *can* be but *one* interpretation of it.

Here are some State Board questions that I consider indefinite:

1. "What is the specific volume of 10 pounds of sulphuric acid, specific gravity 1.8?" The examiner evidently wished the volume, but volume and specific volume are two different things and should not be confused. Yet they are often confused even in the minds of some examiners. For my part, I would be willing to omit "specific volume" from the pharmacist's vocabulary, because I feel that it has little, if any, practical value.

2. "What is the weight of 100 Cc.?" It makes a great deal of difference whether it be 100 Cc. of ether or 100 Cc. of mercury.

3. "Codeine, for what two reasons is it remarkable?" I must confess I do not know what the examiner here referred to, and I do not know where to find the answer to this question.

4. "What is uric acid a normal constituent of? Dose?" Does the examiner wish to know the dose of uric acid or of the substance of which uric acid is a normal constituent?

5. "How does the alkaloid morphine differ from other alkaloids?" An applicant could write a whole thesis in answer to this question and yet, perhaps, not hit the point the examiner may have been after.

Many more examples could be given, but I believe that these are sufficient to illustrate the point. This requirement of definiteness is violated more than any other. I believe that the reason for this is that the examiner has in mind an answer that requires a certain interpretation of his question, and it does not occur to him that any one would think of a different interpretation.

The question should be practical. This requirement permits of a great latitude of interpretation, for what one person considers practical another may consider impractical, therefore the good judgment of the examiner is at stake. Here are some board questions that I would call impractical, but all may not agree with me in this:

1. "Define and name the halogens, giving symbols and atomic weights of each. Calculate the percent of mercury in the two chlorides." I object to this question because it requires the applicant to remember the atomic weights of the elements, which I think is unreasonable.

2. "What is fortified oil and dose of same?" Fortified oil is a rare specimen in pharmacy. Ten practical druggists, old ones at that, were asked this question and not one of them had ever heard of "fortified oil." This, to me, is a good test of the practicability of a question, and this one failed to respond to the test.

3. "Moschus, what is the percent of ash not to be exceeded?" You would have to become a walking encyclopædia if you expect to be able to answer such questions. I believe that the U. S. P. or some other reference book should be used to obtain such facts when they are needed.

4. "What is an aneroid?" Easy enough to answer if you have ever used one and knew its proper name while you were using it, but how many pharmacists are familiar with one or will have an occasion to use one? There are plenty of important facts to ask for, and it seems foolish to seek out unimportant ones.

When possible, the question should test the reasoning power rather than memory. Much pharmaceutical knowledge must be gained solely by the application of the faculty of memory, and questions must be asked that appeal to this faculty only, but there are many questions that could easily be made to appeal to reasoning power as well as memory.

It is not enough that a pharmacist learn a fact; he should also be able to apply it.

Here are a few board questions that I believe could be improved upon in regard to this one point:

1. "Why make solutions of silver nitrate with distilled water?" The answer to this question can easily be learned parrot fashion. If the question had added "Explain fully your answer," the examiner could easily tell whether the applicant understood the reaction that takes place when tap-water is used.

2. "Name several good ointment bases." It is easy to learn several ointment bases, but can the applicant determine what one to use when he is asked to prepare an ointment? Had the question been stated, "Discuss the use of ointment bases from the following standpoints" (with aqueous substances, for different therapeutic effects), the applicant would be compelled to disclose his knowledge or ignorance in regard to the proper one to use.

The question should not be one the solution of which is impossible with the data given. It seems to me that this point needs no elucidation, yet many such quesions appear. Here are a few:

1. "A bottle of quinine contains how many grains?" "Nuf sed."

2. "A stock solution of 10 percent KNO_3 is to be diluted with water to make 8 fluidounces of a 4 percent solution. How much stock solution and how much water should be taken?"

3. "How much boric acid would you use to make one fluidounce of a 5 percent solution in glycerin?"

4. "Reduce 5 gallons of alcohol to 40 percent alcohol. How much water will it take and how many gallons will result?"

All of these problems are impossible to solve correctly, because the specific gravity of the resulting solution is not given. If you assume the specific gravity to be 1, they can be solved. But the specific gravity is not 1, and to me it is a dangerous precedent to permit of such errors. The doctrine of "permissible errors" is a dangerous one, as it is liable to lead to trouble, especially in the hands of a person of poor judgment.

They should not be questions that may be answered by "yes" or "no," without explanation. This requirement is obvious, for the reason that an applicant that knows nothing about pharmacy has fifty percent of a chance to answer correctly.

Here are a few such board questions:

1. "Should bay rum be made with wood-alcohol?"

2. "Would you dispense a prescription calling for 3 grammes of arsenic to be given in 10 doses?"

3. "Is bichloride of mercury a poison?"

The question should not suggest the answer. If the answer is suggested in a question, the question is valueless, so far as testing the applicant's knowledge is concerned, and this is the very purpose of all questions. To illustrate:

1. "What would you do if you received a prescription calling for a poisonous drug, the dose of which you did not know?" Look up the dose, of course.

2. "Convert 50° C. to F. and 50° F. to C. $(C \times 1.8 - 32 = F.)$ $(F. - 32 \div 1.8 = C.)$"

With the above formulæ given, a sixth grader could obtain the correct result.

3. "Ethyl nitrite is very volatile. How would you preserve sweet spirit of nitre?" Why, seal the container, keep it cool, do anything that will prevent the volatile constituent from escaping. Any one would know that much from the way the question is put.

The question should not contain or imply an incorrect statement of fact. It is a well-known rule of pedagogy that the incorrect form should never be given, even though the pupil knows that the form is incorrect, because he is liable to remember the incorrect form instead of the correct form. Some may argue that it makes an excellent " catch " question. I do not believe that " catch " questions should be asked in any examination. Any examination is not a true test of the applicant's knowledge and ability, but they are the best tests that can be given in the time devoted to it. Their efficiency, low at best, is reduced by " catch " questions. The following will illustrate the point:

1. " Give the official preparations of bryonia."

Bryonia is not official and has no official preparation.

2. " Give the official names of the chemicals represented by the following formulæ: $NaCO_3$, H_2SO_4, HNO_3, KBr, Pb_3O_4, CH_5OH, Na_2HPO_4, and NH_4Cl."

Two of these formulæ are incorrect, and the chemical represented by one of them is not official.

I know that members of our State Boards of Pharmacy try very hard to prepare good sets of questions, and, without doubt, many of us teachers could not do as well as they do. A friend of mine, a board member, once told me that he had prepared three different sets of questions for one examination and yet was not satisfied with his work, and I am sure that many others have had the same experience.

In closing, may I suggest that a good thing to do after a set is prepared is to test each question carefully by the following:

Is it definite? Is it practical? Is it correctly stated? Does it contain or imply any incorrect statement? Is it worded best to test the applicant's reasoning power as well as memory? Is it one that the applicant does not have a good chance to guess the answer to? Have all necessary data been given?

If your questions meet some such set of requirements, I feel sure they will be " passed by the board of censors."

MAKE PUPILS THINK.

Passive acceptance of the teacher's wisdom is easy to most boys and girls. It involves no effort of independent thought; it seems rational because the teacher knows more than his pupils, and it is the way to win the favor of the teacher unless he is a very exceptional man. Yet the habit of passive acceptance is a disastrous one in later life. It causes men to seek a leader, and to accept as a leader whoever is established in that position. It makes the power of churches, governments, party caucuses, and all the other organizations by which plain men are misled into supporting old systems which are harmful to the nation and to themselves. It is possible that there would not be much independence of thought, even if education did everything to encourage it; but there would certainly be more than there is at present. If the object were to make pupils think, rather than to make them accept certain conclusions, education would be conducted quite differently: there would be less rapidity of instruction, more discussion, more occasions when pupils were encouraged to express themselves, more attempt to make education concern itself with matters in which the pupils felt some interest.—Bertrand Russell in Atlantic Monthly for June: Education as a Political Institution.

HISTORY OF SUN CHOLERA MIXTURE.*

BY OTTO RAUBENHEIMER, PHAR.D.

As teacher of that fascinating subject, "History of Pharmacy," in the Department of Pharmacy of the College of Jersey City, the writer had occasion to investigate the origin of a great many galenical preparations with which the pharmacist should be familiar. For particulars of the history of Sun cholera mixture in this paper, I am indebted to Mr. Grant M. Overton, one of the editors of the New York Sun.

The Sun cholera cure and its origin were described in an article printed in The Sun, September 11, 1892, stating an interview with George Washington Busteed, of 162 East Twenty-third Street, who compounded the original prescription. It was in June, 1849, in the early days of the cholera excitement, that The Sun published the cholera mixture recipe which Busteed sent to the paper. He prepared the prescription by the advice of the Health Officer of the Port and a prominent city physician, having long known the efficacy of the ingredients. Busteed sent a copy by a messenger to Mr. Moses Y. Beach, the publisher of The Sun, asking him to print it for the "benefit of humanity," and it appeared in print the next day. The Health Commissioners adopted it and engaged Busteed to compound it for all the city hospitals.

While the plague was at its height, patients were brought into Busteed's pharmacy daily by citizens who had found them in the streets. Those attacked by the malady would often drop in their tracks. It was his good fortune to save every patient who was brought into his pharmacy. Busteed first soothed their fear and then administered The Sun cure and rubbed their bodies with hartshorn liniment. This allayed their cramps, and proper attention to diet after that brought them around all right. Cholera can be handled successfully if taken in hand promptly. The only danger is personal uncleanliness and carelessness as to diet. It was in the fall of 1849 before the epidemic ended.

The Sun republished the recipe many times during the cholera epidemics of 1855 and 1866. All told, it has been published in The Sun's columns over 1000 times, and here it is again.

ORIGINAL FORMULA.

Tincture of Opium,
Tincture of Rhubarb,
Tincture of Cayenne,
Spirit of Camphor,
Essence of Peppermint, equal parts.

Mix well.

Dose: Fifteen to thirty drops in water, to be repeated in fifteen to twenty minutes, if necessary.

This formula was included in the Preliminary Draft of a National Formulary of Unofficial Preparations at the Providence meeting of the American Pharmaceutical Association, September 7–9, 1886 (Proc. A. Ph. A., vol. 34, p. 253). The same formula is included in N.F. I (1888) and N.F. II (1896). Owing to the increase in strength of capsicum, from 5 to 10 percent in tincture of capsicum, and of rhubarb, from 10 to 20 percent in tincture of rhubarb, in U.S.P. VIII, the formula for "Sun mixture" in N.F. III (1906) has been modified accordingly. The same formula will also survive in N.F. IV, now in print and official from September 1, 1916.

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* Read at the New Jersey Pharmaceutical Association, Long Branch, 1916.

MISTURA OPII ET RHEI COMPOSITA.

Compound Mixture of Opium and Rhubarb.
Sun Cholera Mixture.

Tincture of Capsicum	100 mils
Tincture of Rhubarb	100 mils
Tincture of Opium	200 mils
Spirit of Camphor	200 mils
Spirit of Peppermint	200 mils
Alcohol, a sufficient quantity,	
To make	1000 mils

Mix and filter.
Average dose: 2 mils.

Let this story of the history of Sun cholera mixture serve as an inspiration to many pharmacists, so as to investigate and to record the origin of other galenical preparations, and thereby make historical pharmacy of practical value.

ANCIENT ROMAN METHOD OF TESTING WATER.

It is gathered from classical authors that the Romans attached great importance to certain properties in water used as sources of drinking supply, and were particular to select a soft water for this purpose. How highly these waters were esteemed is evident from the enormous labor expended on aqueducts to convey the water of the chosen spring to a distance and the pains taken to protect it from pollution during distribution. It has been noticed that the known Roman wells and the springs, which, from their Roman remains, were evidently sources of drinking water for camps or settlements, are at the present time invariably the softest water in the district. It has not been very clear what test was applied to determine the comparative degree of hardness. Some writers mention, without describing, a wine test for water. Hippocrates is slightly more explicit, stating that soft waters are distinguished from hard waters by being tinted by very small quantities of red wine. Following this clue, it is found that by adding red wine drop by drop to a given volume of water a very fair approximate determination of the temporary hardness may be obtained. Thus, 100 Cc. of rain-water is tinted pink by 1 to 2 drops of a red wine; a water with 2 degrees of hardness by 2 to 3 drops; one with 15 degrees by 9 to 10 drops; with 25 degrees, 20 to 22 drops; and so on. In other words, the coloring matter of the wine reacts as an indicator, the red color not showing until acidity is established. It is known that the Romans had a whole series of deep red wines. It is likely that some of these were used in some such list as above indicated.—A. Trillal (*Comptes rend.*, 1916, 162, 486).

BACK TO THE CHEMIST'S SHOP.*

BY C. FERDINAND NELSON, ASSOCIATE PROFESSOR OF PHYSIOLOGICAL CHEMISTRY, UNIVERSITY OF KANSAS SCHOOL OF PHARMACY.

There is something eminently proper, dignified, and altogether fitting in calling a drug store by its English title—The Chemist's Shop. That is precisely what it should be, but, sadly enough in America to-day, seldom is. When we speak of the chemist's shop, it immediately calls to mind the many struggles, trials, and hosts of associations of the past. It explains, in a measure at least, our evolution as a distinct group of men devoted to a definite calling. It shows also very clearly how intimately pharmacy and chemistry have always been associated with each other and how the two have gone hand in hand until recent years, when, with the tremendous accumulation of chemical data in numerous fields not directly associated with medicine, it has become a profession of its own already highly specialized and divided. Historically the pharmacist has a good right to be called a chemist; logically and practically that is precisely what he ought to be, at least in part, and in this capacity he should serve the community in which he lives and labors. The pity of it is that instead of anchoring ourselves to the past, and from this sure point of vantage advancing into the future, we are setting out upon a sea of pure commercialism, going we know not whither, and entirely forgetting our true place and function as professional men.

But, let us ask, can the pharmacist of to-day afford to let go of this rich heritage of the past? Should he sever all real connection with things chemical and devote himself entirely to other fields of endeavor? Is it desirable that the extreme commercialism which has already made such destructive inroads upon our retail drug practice should continue? Evolution implies growth; advancement means progress. We cannot stand still; we must either grow or decay. And there are few of us who will not be forced to admit, if we be honest with ourselves, that however keen and progressive we may be as men of business, we are miserably lacking when it comes to professional strength and development. If we would continue, therefore, to call ourselves pharmacists and professional men, we must begin a radical improvement in our methods and practice.

Many pharmacists have for years cherished as an ideal the idea of operating a drug store in which only physicians' prescriptions were compounded. It is reasoned thus: "If we could only get rid of the side lines, such as patent medicines, cigars, sundries, and the like, with which we are now burdened, but which we find absolutely necessary to keep us alive, how happy we would be. Then could we be real pharmacists. This is the goal for which we would strive." The real drug store, they would say, is the one that only compounds physicians' prescriptions and sells drugs. To them to be a prescription compounder covers all that the word pharmacist implies. Here they reach their goal; their professional ambitions are satisfied.

That this point of view is better than a purely commercialistic one is undoubtedly true; and yet we have all of us witnessed many pharmacists failing miserably because of their inability to secure an adequate patronage when attempting to conduct their business purely along these lines. A pure prescription business is undoubtedly desirable, and yet when all is said, to be only a compounder of drugs must not be the only aim of the pharmacist nor must this occupy all of his time and energy. The pharmacist who, in the future, decides to establish a business of this sort, ignoring all else, will probably meet the same fate that his brother pharmacist has in the past. If an exclusive prescription business has been impossible in the majority of instances in the past, the changing conditions of the present make a similar attempt to-day harder than ever to realize. *We must not ignore the fact that the profession of medicine is marching onward at a tremendous rate, and that the practices which pertained yesterday do not hold at all to-day.* When I was an apprentice in pharmacy, twenty odd years ago, every prescription that came into the store usually consisted of mixtures of four, six or eight ingredients. I well remember hearing my employer say this or that physician who did not prescribe a vast, complex mixture did not know very much. He was a poor doctor or he would have written a more complex prescription. But witness the change. Every year that goes by finds a decrease in the number of drugs used. Prophylactic medicine is taking its hold. We are curing diseases nowadays by keeping our bodies fit, by proper food, by pure air, by mental suggestion. The pharmacist cannot fill these prescriptions, and so the old idea of an exclusive prescription store, however desirable it may have been, must be abandoned.

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* Reprinted from A. J. P., June, 1916, 246.

To say this does not mean to say that the physician will cease to write prescriptions. On the other hand, it seems rather safe to say that as the educational requirements and professional training of the physician increase, he will progressively abandon dispensing his own medicine, as he now often does, and leave that work to the pharmacist. There will thus be more prescriptions written by different men, but in all probability each man will not write as many prescriptions as he formerly did. Physicians will not be as elaborate in the number of ingredients and variety of drugs used. There will be no need of carrying a huge stock of pressed herbs for making infusions, an endless assortment of plasters and salves, hundreds and hundreds of pills, fluidextracts, elixirs, and syrups. There will rather be a few drugs of recognized value whose strength will be carefully standardized and whose action, well known. These it will be the duty of the pharmacist to dispense.

And, again, the preparation of the few drugs the physician will use will in all probability be best carried out by the large first-class pharmaceutical houses now in existence, who have every facility for collecting, preparing, examining, and properly checking the raw and finished products, which the retail pharmacist with his little store possibly cannot have. And there should be no difficulty for us in accepting this point of view. We should not be so loath to stop making a few galenical preparations which we have heretofore considered as a mark of our professionalism. If we but consider, we will remember that one-half to three-fourths of the drugs we have always used have been made, not in our own stores, but in the larger manufacturing establishments. For example, few pharmacists have ever felt that they should make their own pepsin, pancreatin, or oil of wintergreen. Why, then, should we care if the percolators in the back rooms of our stores are not turning out a few such simple preparations as tr. arnica, tr. opium, or fluidextract of sarsaparilla? To be sure, the prospective pharmacist should be taught how these preparations are made and actually make them in his preliminary college training, just as he should also be instructed concerning all the known drugs in the materia medica, whether they are for the moment in actual use or not. But in his actual retail practice, he can well afford to abandon this time-consuming and not particularly skilful work and devote himself to the chemical and pharmacological examination of the finished products he buys. As prescription specialist, he should rather serve his customer by guaranteeing the strength and reliability of the few ingredients he puts into the prescriptions that he compounds, that incompatibilities are avoided, and that the dose is safe and accurate.

Where, then, you will say, is our field? If we cannot hope to do an exclusive prescription business, if we must even abandon the preparation of the drugs we use in our prescriptions, to manufacturing houses, are we not doing the eminently proper thing by increasing our side lines, by changing to the opposite extreme and becoming purely commercial in our methods? No! a thousand times, No. Let us rather shift our point of view; adjust ourselves to the conditions we find ourselves in; abandon some of the ideals we have had, and in their place adopt newer, better, and larger ones.

The young man who has graduated from a first-class school of pharmacy has received, in addition to his training in botany, pharmacognosy, materia medica, prescription compounding, and galenical preparations, a good training in inorganic and organic chemistry, in qualitative and quantitative analysis. He may, especially if he has elected a three- or a four-year course, even have taken one or two courses in drug analysis, bacteriology, food analysis, sanitary and water analysis. On the whole he has a more thorough training in these subjects than the physician has. He is really better fitted, therefore, to undertake analytical work along chemical and bacteriological lines than the physician, who has to devote his energies chiefly to surgery and diagnosis. Now, if the practice of medicine is becoming more simple, so far as the administration of drugs is concerned, it is becoming ten times more complex and elaborate as regards chemical and bacteriological examination of body fluids for the purpose of diagnosis. These absolute checks are increasingly being demanded by the physician who, in anticipating disease, will advise his patients that analyses of this sort be made at regular intervals rather than wait until they are actually stricken. Beginnings of this sort are seen even now in our large cities, where certain physicians are devoting themselves to doing analytical work for their colleagues rather than entering into regular practice for themselves. *The modern pharmacist could and should do this work.* He has the better chemical training, has a large store which he can use for a laboratory, has an abundant stock of chemicals and other supplies which are needed for carrying on this work. All he needs to do is to familiarize himself with the special technique of these methods, which is easily done, granting that he has the preliminary training we have spoken of. The physician, moreover, will welcome a departure of this sort on the part of the pharmacist, because he has not the time or the energy to keep adequately informed on the details of this work and would gladly turn it over to the pharmacist, did he but know that he would handle it. There is a vast amount of this diagnostic laboratory work, which awaits but the proper men to do it. Suppose, now, that the pharmacist did devote himself along these lines. Suppose he established a departure of this sort in connection with his retail practice. He could, in a short while, if he gave it proper attention, abandon selling many of the sundries which he has no interest or desire to sell. He could devote himself to this work and in addition maintain his prescription department, and this combination would give him ample field for all of his energy and in addition make him a truly professional man. To make the statements that I have made specific, I have drawn up the following list, which includes some of the analyses physicians might desire to have made in relation to their work in diagnosis. The beginnings made along these lines could be slow and modest, and as the business developed, the field could be enlarged.

Detection of tubercle bacilli in sputum.
Detection of diphtheria bacilli from throat swab.
Detection of malarial parasites.
Counting of red blood-corpuscles.

Counting of white blood-corpuscles.
Differential blood-count.
Percent of hæmoglobin.
Widal test for typhoid fever.
Wassermann test for syphilis.
Complement-fixation for gonorrhœa.
Examination of smears for gonorrhœa.
Identification of blood-stains.
Preparation of autogenous vaccines.
Preparation of sterile bandages, sterile water, and other solutions, syringes, needles, etc.
Examination of milk.
    Specific gravity.
    Reaction.
    Total protein.
    Casein.
    Fat.
    Milk-sugar.
    Detection of preservatives.
        (1) Sodium carbonate.
        (2) Salicylic acid.
        (3) Formaldehyde.
        (4) Boric acid and borax.
Hydrogen-ion concentration of urine and fæces.
Examination of gastric contents.
    Detection of free hydrochloric acid.
    Detection of butyric acid.
    Detection of acetic acid.
    Detection of pepsin.
    Detection of rennin.
    Detection of protein digestion products.
    Detection of carbohydrate digestion products.
Quantitative determination.
    (1) Of total acidity.
    (2) Free acidity.
    (3) Combined acidity.
    (4) Acidity due to organic acids and acid salts.
Urine.
    Qualitative examination.
        Specific gravity and reaction.
        Albumin.
        Sugar.
        Acetone.
        Diacetic acid.
        Indican.
    Quantitative determinations.
        Total nitrogen (Kjeldahl).
        Urea (Van Slyke's Urease Method).
        Uric acid (Folin's microchemical method).
        Chlorides.
        Dextrose (Benedict's method).
        Albumin (Folin's turbidimetric method).

There is but one drawback to our entering this profitable phase of truly professional work and that, I am sure, is none other than the pharmacist's tremendous inertia and lack of confidence when dealing with things professional, his phobia of not daring to proceed along these lines from the known to the unknown without some one to show him exactly what ought to be done and how to do it.

The work mentioned above refers only to a few of the diagnostic methods which the physician requires. But the pharmacist's possibilities in chemical and bacteriological work, if he once enters upon this field, do not by any means end here. He may, for example, in addition, devote himself to the analysis of foods and food products, milk, cream, cooking oils, fats, meats, candies, flavoring extracts—all commodities, in fact, which are used as foods, or he may make sanitary water analyses, gas analyses, iron and steel analyses, the various analyses required of him in his capacity as city chemist. The field is limited only by the energies which he chooses to put forth. *Why can we not, as a profession, begin, at least in a small measure, to abandon the selling of soda-water, cigars, sundries, paints, and ham sandwiches, for this more skilful, and more truly professional work?* Our preliminary training has been all along these lines. Why should we not make some use of the information we have spent so long a time acquiring? It is granted that the beginnings will be hard, but that should make us all the more eager to attempt them.

A SUBSTANCE COAGULATING INULIN.

The roots of chicory, and dahlia tubers, contain a substance which is an energetic coagulant of the juices extracted from these organs, and also causes the precipitation of solutions of pure inulin. Although not possessing all the characters of a diastase, this substance so far resembles these ferments that it is proposed to call it inulo-coagulase. When freshly expressed the juices of these roots quickly become turbid and soon set to a gelatinous mass, due to the action of the coagulant. If boiled, however, it loses this peculiar property, and the inulin is gradually deposited in a crystalline form. This boiled juice will often contain from 12 to 15 percent of inulin. If a few drops of the fresh unboiled juice are added to the boiled liquid it quickly coagulates. This proves that the coagulase is destroyed by boiling: but the fresh juice is very active on the inulin in boiled juice. Precipitation of the inulin, instead of coagulation, may be obtained as follows. The juice is diluted with an equal volume of water and divided into two portions. One is boiled: the other is quickly frozen, which causes the precipitation of the greater part of the inulin. It is then melted and filtered. On adding a single drop of this filtrate to 10 mils of the boiled juice a flocculent deposit of inulin is formed in 10 or 12 hours. The amount of precipitate is increased in direct proportion to the quantity of the refrigerated juice added up to a certain point. If the frozen juice is boiled, or even kept at 60° C. for 15 minutes, its coagulating power is lost. Inulo-coagulase is precipitated by alcohol in a similar manner to the diastases.—J. Wolff (*Comptes rend.*, 1916, 162, 514).

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in THE JOURNAL, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

OTTO RAUBENHEIMER, Brooklyn, N. Y.

No. 190.

UNGUENTUM ACIDI SALICYLICI.

Salicylic Acid Ointment.

B.P. 1914.

Salicylic Acid	2 Gm.
Paraffin Ointment, White	98 Gm.

Melt the ointment, add the acid, and stir until cold.

Contributed by Clarissa M. Roehr:

No. 191.

LUBRICANT.

Irish Moss	30 Gm.
Distilled Water	1000 mils

Wash the Irish moss with cold water, then place it in a double boiler and heat it for one-half hour. Strain through absorbent lint. Add sufficient phenol crystals to make the product contain 2 percent phenol. This forms a thin lubricating liquid, which is best dispensed in jars.

A thicker lubricant is made by evaporating the strained liquid about one-third and then adding the phenol. This is dispensed in collapsible tubes.

If the cost of phenol should prohibit its use, then mercuric oxycyanide can be used in its place.

Other lubricating jellies and oils, see Formulas No. 23 to No. 30, J. A. PH. A., vol. i (1912), pp. 366–368, and Formulas No. 31 and No. 32, J. A. PH. A., vol. i (1912), p. 505.

Contributed by M. I. Wilbert:

No. 192.

THIONIN STAIN.

(Martin Dupray.)

Thionin	0.5 Gm.
Phenol, crystals	2.0 Gm.
Distilled Water	100.0 mils

This solution must be prepared fresh every three or four months.

Thionin stain is used in the diagnosis of the endamœba in pyorrhœa alveolaris.

(J. A. M. A., 1916, vol. 66, p. 507.)

Contributed by James Carlton Wolf, Baltimore:

No. 193.

TINCTURA ANISI STELLATA.

Tincture of Star Anise.

Teinture de Badiane.

Star Anise	200 Gm.
Alcohol, 80 percent, a sufficient quantity,	
To make	1000 mils

Prepare by maceration or percolation. This preparation is extensively prescribed in Baltimore and dates back to the French Codex, in which there was official

Alcoolat de Badiane.

In this preparation the ground star anise was macerated during 4 days in 80 percent alcohol and then distilled on a water-bath.

Contributed by the Chairman:

DIARRHŒA MIXTURES.

The sale of these mixtures or so-called "cholera drops" has become a necessity, especially during the hot weather. However, owing to their high opium content, the Federal as well as the State laws prohibit the counter sale of the diarrhœa mixtures official in the N.F. III, two of which, namely the "Sun mixture" and Squibb's diarrhœa mixture, will be retained in N.F. IV.

The following three formulas are entirely free from opium or other narcotics, and the fourth formula contains but a mere trace, namely 0.2 percent of opium or 0.02 percent of anhydrous morphine.

No. 194.

ACID DIARRHŒA MIXTURE.

(Geo. C. Close.)

Diluted Sulphuric Acid	1 mil
Comp. Tinct. Cardamom	2 mils
Sugar	4 Gm.
Spearmint Water	11 mils

For diarrhœa: 8 mils in a wineglass of water after each movement of the bowels.

As a tonic: 4 mils 3 times a day.

(Proc. A.Ph.A., vol. 19, p. 488.)

No. 195.

TINCTURA ANTICHOLERICA.

D.M.

Aromatic Tincture	80 mils
Acetic Ether	18 mils
Oil of Peppermint	2 mils

No. 196.

TINCTURA ANTICHOLERICA BASTLERII.

D.M.

Tincture of Cinnamon	24 mils
Spirit of Ether	12 mils
Oil of Juniper Berries,	
Oil of Cajuput,	
Oil of Anise, of each	4 mils
Haller's Elixir N.F.	1 mil

No. 197.

IMPROVED CHOLERA MIXTURE.

(Raubenheimer.)

Spirit of Peppermint	200 mils
Spirit of Camphor,	
Tinct. of Capsicum,	
Tinct. of Rhubarb, of each	100 mils
Camphorated Tinct. Opium	500 mils

This preparation is only one-half the strength of "paregoric" and is therefore quite safe. The writer has used and sold these "cholera drops" for over a year with perfect satisfaction.

It seems hardly possible that the "opium habit" could be contracted from this mixture.

Contributed by William Gray, Pharmacist, Presbyterian Hospital, Chicago:

No. 198.

LABORATORY DESK STAIN.

For 75 Square Feet.

A.

Copper Sulphate	125 Gm.
Potassium Chlorate	125 Gm.
Hot Water	1000 mils

B.

Aniline Oil	120 Gm.
Hydrochloric Acid	180 Gm.
Water	1000 mils

C.

Raw Linseed Oil.

Directions: Apply in order given, 24 hours apart.

No. 199.

ELIXIR PARALDEHYDI.

Martindate & Wescott.

Saccharin	1 Gm.
Oil of Cinnamon	4 mils
Oil of Bitter Orange	8 mils
Paraldehyde	240 mils
Glycerin	240 mils
Alcohol	480 mils

Dose: 4 to 12 mils.

The present scarcity and high cost of veronal, sulphonal, trional, medinal, etc., should again revive paraldehyde as a hypnotic.

No. 200.

MISTURA PARALDEHYDI.

M. & W.

Paraldehyde	8 mils
Oil of Bitter Almond (free from HCN)	3 drops
Fluidext. of Glycyrrhiza	8 mils
Syrup	30 mils
Water, a sufficient quantity,	
To make	120 mils

Dose: 15 to 60 mils.

This mixture, in which the nauseous taste of paraldehyde is well covered, is given because alcohol and paraldehyde are physiologically incompatible.

No. 201.

SEMMOLA'S FLUID.

Sodium Iodide	8 Gm.
Sodium Phosphate	16 Gm.
Sodium Chloride	32 Gm.
Water, a sufficient quantity,	
To make	4000 mils

Given in doses of 60 mils after operations to improve elimination.

No. 202.

MISTURA FERRI CITRATIS.

(Gray.)

Soluble Ferric Citrate	32 Gm.
Citric Acid	5 Gm.
Spirit of Lemon	8 mils
Syrup	750 mils
Water, a sufficient quantity,	
To make	1000 mils

In anæmic conditions take 4 mils 3 times daily after meals. Very palatable. Keep in a cool, dark place.

No. 203.

LIQUOR POTASSII CHLORATIS AROMATICUS.

A saturated solution of Potassium Chlorate in Cinnamon Water.

This is a prescription of a very famous practitioner. Used as a mouth wash and gargle.

No. 204.

DEODORIZER FOR SICK-ROOM.

Coumarin	2 Gm.
Oil of Lavender	2 mils
Oil of Bitter Almond	4 mils
Oil of Clove	12 mils
Oil of Eucalyptus	16 mils
Oil of Patchouli	10 drops

Use as a spray. This will remove the disagreeable and sometimes unbearable odor in sick-rooms.

No. 205.

ANTISEPTIC AND ASTRINGENT MOUTH WASH.

Zinc Phenolsulphonate	60 Gm.
Liquefied Phenol	15 mils
Glycerin	120 mils
Water, a sufficient quantity,	
To make	1000 mils

As mouth wash dilute with 3 or 4 volumes of water.

Contributed by the Chairman:

MOTH PREVENTATIVES.

Being in season, the following is abstracted from a paper on "Moths," which the writer, at that time editor of the Practical Druggist, published in June, 1913, pp. 44–46, and which for particulars should be consulted.

The principal facts in mothology are: Moths seldom appear before April and they stay until August or September. They come from last season's eggs which have been deposited in any hairy or woollen article, which the mother moth has found convenient. The moth deposits from 18 to 140 minute eggs during the season on such materials, which are to furnish the larvæ with food. In from 3 to 11 days these eggs are hatched into white soft larvæ or worms, which make for themselves a comfortable case from the cloth in which they were deposited. They begin to grow and use up more of the material until the worm is at its biggest in about a month. Then it begins to wander and makes those tracks on clothing, which are so well known and heart-breaking to the housekeeper. By and by it seeks a cosy spot and fastens up the ends of its case, becomes a full size cocoon, sleeps all winter, and in the spring the winged moth emerges from the larval case. Then it finds a mate, again deposits its eggs, and the same transmutation takes place.

Above description shows that the moth itself is a harmless insect, and that the real enemies are the eggs or the larvæ. It is furthermore obvious that the usual time for attacking moths, namely, at the end of the winter, is the wrong season, and that it is much better to kill the larvæ from June to September and thereby prevent the birth of another generation. Nevertheless, it is well to apply during the spring and early summer a *moth preventative,* with the distinct understanding that such a *preventative* does not kill the moths nor the eggs. Camphor, cedar wood, oil of cedar and naphthalene are such preventatives and have been used for a long time. Although the latter has been used extensively it is well to know that the French scientist Berthelot made the statement, "No one has yet produced a single moth killer by naphthalene." This subject was again studied by the French scientists Lecaillon and Audige in a confined atmosphere, who proved that its action is very slow. Owing to its high price at the present time, pharmacists should be well acquainted with this fact. Remember, *Moth Preventatives are not Moth Killers!*

Directions for Using Moth Preventatives.

Thoroughly beat, shake and brush, and in case of furs also comb the goods, and then expose them to sunlight as long as practicable. Then sprinkle the Moth Powder in between the goods, and put plenty of powder on top, in case the same is exposed to the air. It is, however, far better to place the articles in tight receptacles, as boxes, trunks, etc., so that the odor of the powder will thoroughly penetrate the goods, and that, above all, no moths can gain admittance.

MOTH POWDERS.

No. 206.

(Cracau.)

White Pepper	10 Gm.
Camphor	20 Gm.
Insect Powder,	
Naphthalene, of each	50 Gm.

No. 207.

D. M.

Capsicum	10 Gm.
Naphthalene	40 Gm.
Insect Powder	50 Gm.

No. 208.

CEDAR MOTHALINE.

Ground Cedar Wood,
Naphthalene, equal parts.

No. 209.

LAVENDER MOTHALINE.

Lavender Flowers	1 part
Naphthalene	9 parts

No. 210.

TOBACCO MOTH POWDER.

Ground Tobacco Stems,
Insect Powder, equal parts.

For a long time tobacco has been used as a moth preventative. Of course, various combinations can be formed containing tobacco, which in the shape of ground stems or other refuse can be bought in the market at little cost.

MOTH LIQUIDS.

No. 211.

(Hager.)

Camphor	25 Gm.
Naphthalene	50 Gm.
Nitrobenzol	10 mils
Denatured Alcohol	815 mils
Oil of Turpentine	1000 mils

No. 212.

(Cracau.)

Phenol	5 Gm.
Naphthalene	20 Gm.
Acetic Ether	5 mils
Denatured Alcohol	100 mils

No. 213.

D. M.

Camphor	10 Gm.
Naphthalene	40 Gm.
Capsicum	100 Gm.
Oil of Clove	10 mils
Oil of Turpentine	100 mils
Denatured Alcohol	900 mils

No. 214.

(MacEwan.)

Phenol,	
Camphor, of each	30 Gm.
Benzin	500 mils

Great care should be taken as benzin is highly inflammable and its vapors are very explosive.

For these reasons the Chairman proposes the following modification, which is comparatively safe to use.

No. 215.

(Raubenheimer.)

Phenol	10 Gm.
Camphor	30 Gm.
Carbon Tetrachloride,	
Benzin, of each	500 mils

Another formula which has given good satisfaction is the following:

No. 216.

CEDARTINE.

Oil of Cedar	50 mils
Oil of Turpentine	1000 mils

Oil of cedar is usually oil of cedar wood from *Juniperus virginiana.* A far superior article for this purpose is oil of cedar leaves from *Thuja occidentalis.*

No. 217.

PARA-DICHLORBENZOL.

This is the latest and, as per reports, a real *Moth Killer.* It is marketed both in the form of a crystalline powder and as a liquid, the vapor of which is said to kill the moths and their eggs and larvæ.

The liquid preparations are used to paint the trunks, chests or wardrobes. They can also be used as a spray directly on to the goods, providing they do not discolor them. In connection with this it should be borne in mind that alcohol will affect most of the aniline dyes, for which reason liquids containing benzin, carbon tetrachloride, oil of turpentine are preferable.

Another method to use the liquids is to saturate pieces of blotting paper and place same between the goods.

Liquids have that great advantage over the moth powders that they will dissolve the waxy coating of the eggs deposited by the moth. It is for this reason that the liquid should be sprayed directly on the infected goods with an atomizer.

A REVIEW OF CURRENT PHARMACEUTICAL LITERATURE.*

BY JOHN K. THUM.

The department of "Therapeutics" in the Journal of the American Medical Association often contains information and comments about advances made in medicine that should be, and are, of interest to pharmacists. In the last few years much has been written about the cardiac tonics, particularly digitalis and, to some extent, strophanthus. Any new facts that are brought out concerning these drugs, and preparations of these drugs, that are backed up by animal experimentation must appeal to the conscientious physician and should, of necessity, be of interest to the wide-awake pharmacist. Much of this work has been done by Hatcher and Eggleston. Concerning some of their more recent work "Therapeutics" has this to say, and, as we are just now passing through a period of "fat-free" digitalis agitation which hits the medical profession every now and then, this comment is peculiarly appropriate:

"Several years ago Hatcher and Eggleston investigated the emetic action of digitalis. Their results showed that the digitalis bodies produce nausea and vomiting through action on the vomiting centre in the medulla. The direct action of therapeutic doses of these drugs on the gastric mucous membrane is unimportant. The fixed oil or fat from digitalis, to which the emetic properties are sometimes attributed, was given to cats in large doses without producing any symptoms whatever. It is clear, therefore, that efforts to avoid nausea by removal of the oil, administration through other channels than the stomach, or any other means than regulation of the dose, must prove unavailing. It might naturally have been expected that the same conclusions would apply to strophanthus preparations, especially as no satisfactory evidence has been presented in support of the claim that the oil present in tincture of strophanthus helps to produce the nausea which sometimes occurs after its use. Hatcher has performed experiments with oil of strophanthus which show that this assumption is justified. He finds that the average therapeutic dose of the tincture of strophanthus contains less than one ten-thousandth part of that required to produce nausea and vomiting in the cat, relative to the weight. While removal of the oil renders the tincture more 'elegant' pharmaceutically, such removal is of no therapeutic importance." (J. A. M. A., Apr. 15, 1916, p. 1199).

THE STANDARDIZATION OF DIGITALIS AND THE POTENCY OF AMERICAN-GROWN DIGITALIS.—A comparison of American-grown digitalis leaves with those obtained from other sources showed that it is possible to grow leaves of a very high quality in this country. This was proved by biological determination. The experimenters worked with an infusion of the leaves and used Hatcher's "cat" method of standardization in preference to the so-called "frog" method. In their opinion, the latter method is less reliable than the former. It will be remembered that the "cat" method is comparatively simple and consists in determining the minimal fatal dose per kilogramme weight of cat, the drug being injected slowly into the femoral vein. They agree with Hatcher that the infusion does not deteriorate as rapidly as commonly believed; they also make the statement that there are differences in activity due to the method of preparation; they also believe that we have in America a digitalis that cannot be surpassed. They also make the statement that "the name of this or that firm does not always insure potency or digitalis effect." Altogether this is a most valuable paper and a distinct contribution to the positive knowledge concerning digitalis that is gradually being added to the literature of this well-known drug. (J. A. M. A., March 18, 1916, by L. G. Rowntree, M.D., and D. I. Macht, M.D.)

DIGITALIS STANDARDIZATION. THE PHYSIOLOGICAL EVALUATION OF FAT-FREE DIGITALIS AND COMMERCIAL DIGITALIN.—In an endeavor to discover the activity of some commercial preparations of fat-free digitalis and German digitalin the following conclusions were drawn: The biological determination was carried out by the one-hour frog method. This method was selected because it is generally conceded that the various factors which must be considered in this method of assay are kept uniform. Absorption from the lymph system of the frog was found to be variable and to depend somewhat on the temperature at which the frogs were kept while assayed. A variation of over 250 percent was discovered in 13 samples of commercial fat-free digitalis and 150 percent in five samples of commercial digitalin (German). There is no difference in the qualitative effects of fat-free digitalis on the dog as compared to those produced by the official tincture; and the difference in the absorption between these two different tinctures from the lymph system of the frog is so slight as to be unworthy of notice. Some of the samples of fat-free digitalis showed considerable deterioration after being kept under ordinary conditions for a period of from five to seven months. It is suggested that manufacturers adopt a uniform method of assay and a standard of activity. Only thus can physicians get uniformity, which they have a right to expect when they prescribe commercial preparations of digitalis. In view of the rapid deterioration of commercial preparations of fat-free digitalis it is deemed advisable that such preparations be dated, so that physicians have some means of knowing how old a preparation is they are prescribing for their patients. (Hyg. Lab. Bull. No. 102, by George B. Roth, M.D.)

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* Read at the Philadelphia Branch A. Ph. A., May meeting.

FEDERAL STANDARDS FOR MINERAL WATERS.—In no other country in the whole world is there such a large sale and consumption of mineral waters as in these United States. Recognizing this fact and the belief that the public has, generally speaking, of taking the purity of these waters for granted, the government has, through the activity of the Public Health Service, adopted the following standards. The authorities believe that these requirements are not too stringent to apply to waters that are imported from abroad.

1. The total number of bacteria developing on standard agar plates, incubated 24 hours at 70° C., shall not exceed 100 per cubic centimetre; provided that the estimate shall be made from not less than two plates, showing such numbers and distribution of colonies as to indicate that the estimate is reliable and accurate.

2. Not more than one out of five 10-mil portions of any sample examined shall show the presence of organisms of the *Bacillus coli* group.

It seems that the Bureau of Chemistry has been giving this matter of the purity of these waters considerable investigation for some years, and the above standards are the result of its investigations. Thus mineral and table waters that are offered for sale in interstate commerce are required to conform to these standards.

MEDICAL, SCIENTIFIC, EDUCATIONAL AND PHILANTHROPIC INSTITUTIONS NOT TO BE AFFECTED BY FIXED PRICE LEGISLATION.—Senator Ashurst, of Arizona, has introduced a bill into the Senate which provides that a grower, producer, manufacturer, or owner of an article having a trade-mark or special brand, who sells it to a dealer or retailer, can designate and prescribe the price at which it shall be resold, the object, of course, being to prevent the cutting of prices. In this bill, however, it is expressly provided that the act shall not apply in cases of sales of such articles to any society or institution established solely for educational, medical, scientific, or philanthropic purposes. (Jour. A. M. A., March 25, 1916, p. 67.)

MAGNESIUM HYPOCHLORITE AS A DISINFECTANT.—The advantages claimed for this chemical over other hypochlorites as a disinfectant and germicide are that it is more powerful as a disinfectant and at the same time less caustic. It is also much cheaper; other things being equal, this is a desideratum not to be ignored. It is prepared for use by dissolving 190 grammes of magnesium sulphate in 2 litres of water and mixing this with 2 litres of water into which 100 grammes of chlorinated lime have been well stirred. The two solutions are first filtered before mixing; the resulting precipitate is allowed to subside and the clear supernatant liquid, preferably filtered, is then ready for use. This can be used freely as a dressing, as it has no untoward action on the healthy tissues. It is asserted that the organism bears the magnesium well—in fact, much better than can be said of either lime or sodium. (Jour. A. M. A., March 25, 1916, from the Paris Médicale, Feb. 19, vi, No. 8, p. 197, by C. Mayer.)

THE THERAPEUTIC VALUE OF THE HYPOPHOSPHITES.—In order to be classed as a useful drug it is necessary that a drug be able to accomplish one of three things: (1) It must have either a local or a physiological action; (2) it must show a particular influence on pathological processes, and (3) it must have food value. After a brief review of the literature pertaining to the hypophosphites the writer of this paper adduces evidence, both of a clinical nature and the study of the effect, or lack of effect, of this drug on animals. The conclusions are that the hypophosphites as a source of phosphorus for the body are without value. No evidence is adduced showing that they have any physiologic effect; that they have any influence on pathologic processes; that they have any value as a food. The author tersely adds: "If they are of any use, that use has never been discovered." (Jour. A. M. A., Feb. 12, 1916, p. 488, by W. McKim Marriott, M.D.)

REPORTS OF COMMITTEES

REPORT OF THE COMMITTEE ON PHYSIOLOGICAL TESTING.*

The members of the Committee were not appointed until May, and the time elapsing before the annual meeting was so short that it was thought best to consider by correspondence what might be done during the coming year, rather than to start laboratory work and not be able to complete it. In view of the fact that so much time is required for laboratory work, it seems to us wise to recommend that the re-appointment of this Committee, or the appointment of a new Committee, should be made at the annual meeting or very soon thereafter, in order that any studies which it is thought advisable to take up may be started early and continued through the year and brought to a successful close, in time for the annual report.

We are informed that the United States Pharmacopœial Revision Committee will shortly report on the subject of Physiological Testing. It would seem to us that a study of whatever of such tests as may be adopted or recommended, and particularly as to their applicability to commercial testing, would be of much interest to this Association.

In connection with any method of physiological assay of the Heart Tonics of the Digitalis Series that may be adopted, it seems desirable, in order to get uniform, practical results, to investigate the following factors, assuming that some form of the frog method will be selected:

(*a*) What is the best means of collecting and storing frogs. (*b*) How is the accuracy of the assay method influenced by: moisture; temperature; light; rapidity of absorption; percentage of alcohol and other diluting fluids; concentration and size of dose; most suitable temperature and other conditions for carrying out the tests, etc.

Every effort should be made to reconcile the variations in technic employed in the different laboratories, in order to devise such technic as will give uniform and practical results.

Cannot preparations of aconite be assayed more accurately by the chemical than by a physiological method?

On account of the growing importance of the products of the pituitary gland as oxytocic agents, consideration of the best method of assaying such products or active principle or principles should be given attention.

We may briefly report that the following is a synopsis of the work that has been published on the subject of Physiological Testing in this country and abroad during the past year:

Sollman, Mendenhall and Stingel. The Influence of Temperature and Concentration on the Quantitative Reaction of the Heart to Ouabain.

Journal Pharmacology and Exper. Therapeutics, vol. vi, May, 1915.

The authors find both these factors to influence the toxicity of ouabain to frogs, particularly the former. At 15° C. the M. L. D. of ouabain is six times as great as at 26° C.

Pittenger, Paul S. A New Pharmacodynamic Assay Method. JOURNAL A. PH. A., vol. iv, April, 1914.

Gold fish are suggested as test animals for the assay of the Digitalis Series of Heart Tonics. Weight can be ignored; individual variations are only slight: temperature and concentration are the two most important factors.

Hamilton and Rowe. What is the Best End-Point in the Frog Heart Method for Digitalis? JOURNAL A. PH. A., vol. iv, 1915, p. 108.

The authors submit data from which they conclude that ultimate death is a more distinct end-point than systolic stand-still in one hour and is less affected by variable factors.

Hamilton, H. C. Cannabis Sativa. Is the Medicinal Value Found Only in the Indian Grown Drug? JOURNAL A. PH. A., vol. iv, April, 1915.

The author brings forward no new experiments, but comments on the previous experiments of himself and others, criticizes the conclusions of Eckler and Miller and concludes that the American grown drug contains the active constituent, but that in most experiments the same care is not exercised in selecting the part corresponding to the official drug.

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* Scientific Section, San Francisco meeting.

Roth, George B. Pituitary Standardization. A Comparison of the Physiological Activity of Some Commercial Pituitary Preparations. Hygienic Laboratory Bulletin, No. 100.

The author claims that the use of the excised uterus muscle from a virgin guinea-pig is the most sensitive and accurate method available for standardization purposes.

Of the various preparations tested, only those from two manufacturers had the same uniformly high activity.

Focke. Further Steps in the Standardization of Official Digitalis Preparations. Zeitschrift f. exp. Path. u. Therapie, vol. xvi, 1914, p. 443.

The author finds equally valuable the one-hour or the short-time variations of the frog heart method for digitalis.

He states that, for the purpose of assaying the leaves, it is unnecessary to exhaust with alcohol; an infusion with weak alkali extracts them more readily and is most rapidly absorbed by the test animal.

Gottlieb, R. The Method for Assaying Digitalis Preparations on Frogs. Münch. Med. Woch., vol. lxi, 1914, p. 813.

The author reviews the various methods and modifications proposed and dwells particularly on the difficulties due to the variable susceptibilities of the frog. This he finds to be seasonal and individual, modified by temperature.

He concludes that, because of the many sources of error, very considerable experience is necessary before uniform results may be expected from the use of any method.

Gunn, John W. C. The Influence of Temperature on the Action of Strophanthin on the Mammalian Heart. Journal of Pharmacology and Exper. Therapeutics, vol. xvi, Sept., 1914, p. 39.

The author concludes that on the isolated rabbit's heart strophanthin acts more quickly as the temperature rises, probably because the rate of flow through the coronary vessels is more rapid.

Haskell, C. C. The Influence of Temperature on the Results Secured by Houghton's Method of Assay for the Heart Tonics. Lilly Sc. Bulletin, vol. i, pp. 199–201.

The author found that this factor materially affects the M. L. D., the dose at 18° C. being about twice as great as at 25°–30° C.

Pilcher and Sollman. The Action of Ergot and Its Constituents on the Vasomotor Centre. Journal of Pharmacology and Exper. Therapeutics, vol. xvi, June, 1915, p. 385.

The authors conclude that these have no effect on the vasomotor centre, the rise in pressure following an injection being due to peripheral stimulation.

Vanderkleed and Pittenger. Variation in the Susceptibility of the Guinea-pig. JOURNAL A. PH. A., vol. iii, 1915, p. 815.

The authors find a variation of less than 20 percent between the extremes of minimum lethal doses for the Digitalis Series on guinea-pigs.

They conclude that the use of guinea-pigs for standardization of these drugs is the simplest and most satisfactory, eliminating the standardization of the test animal.

Haskell, C. C. The Physiological Activity of Ergotin and Powdered Extract of Ergot. JOURNAL A. PH. A., vol. iii, 1914, p. 786.

The author finds that both these preparations cause bluing of the cock's comb and contain practically all of the pressor activity of the crude drug.

Haskell and Miller. Influence of Heat and Method of Storing upon the Potency of Digitalis Leaves. JOURNAL A. PH. A., vol. iii, 1914, pp. 306–308.

The authors find that in a year these factors do not affect the activity of the drug.

Crawford, A. C. The Cock's-Comb Test for the Activity of Ergot Preparations. Journal Alumni College Phys. and Surg., Baltimore, vol. xvii, 1914–1915, pp. 4–14.

CHAS. R. ECKLER,
PAUL S. PITTENGER,
E. M. HOUGHTON, *Chairman.*

REPORT OF THE SPECIAL COMMITTEE ON REGULATIONS FOR TRANSPORTATION OF DRUGS BY MAIL.*

At the annual meeting held in Detroit in August of last year (1914), the Committee on Post Office Regulations for the Mailing of Poisons made a full report on the situation, taking up the causes of the unfortunate position in which we find ourselves and setting forth at length the laws and regulations governing, or rather preventing, the mailing of poisons. See JOURNAL AMERICAN PHARMACEUTICAL ASSOCIATION, February, 1915. The Committee's report was heard and accepted, and the Committee itself discharged. It was evident, however, that work of this kind, to be of value, must be continuing, and some weeks after the August meeting the Committee, slightly rearranged, was reappointed. It is now known as the Special Committee on Regulations for Transportation of Drugs by Mail.

The situation as depicted in our last previous report remains unchanged to-day, no new laws having been passed and no new regulations having been promulgated. It is still illegal to send poisons through the mails, even though they can be packaged in such a way as to make them safe for all that handle them. It is a daily occurrence that small parcels containing poisons must be handled by express and usually at greater expense, merely because we forbid ourselves the use of our parcel post. The express companies handle the packages with entire safety, both as to their employees and as to the goods. In the meantime our Post Office Department in Washington, instead of being allowed to increase its usefulness, is issuing statements showing millions of expense beyond its receipts.

It has been suggested by some that each individual take the subject up with his postmaster, urging an extension of the parcel post so that poisons may be handled through the mails. It might stimulate the Post Office Department to a closer consideration of the subject, if it were brought to the attention of the Department constantly by the postmasters themselves. If it were taken up on the basis of an extension of the parcel post, as well as a needed added facility in the drug business, it would perhaps be of value.

Your Chairman, who is writing this report because he feels it is only a report of progress, expresses the view of the Committee, as shown by correspondence, that two fields are open to us, and both must be cultivated. First, we must continue to voice our disapproval of present conditions, as we do from time to time, and second, exert our influence to secure the passage of a national poison law especially drawn to regulate interstate commerce in poisons. Handling poisons in the mails will naturally follow the enactment of such a law.

The Committee has made a study of the above two fields of operation during the year, and has noted with interest the attention that other bodies also are giving to the subject. It is therefore suggested that the work of the Committee be carried on through the coming year or years, recognizing at once that the work is likely to be lengthy. The Chairman would be glad to suggest one or two more names to add to the membership of the Committee.

Respectfully submitted,

B. L. MURRAY, *Chairman.*

Read in full by E. L. Newcomb. Report received to take usual course, moved to adopt Mr. Murray's suggestion that Committee be increased by two names to be suggested by Mr. Murray. August 12, 1915.

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* Section on Education and Legislation, San Francisco meeting.

REPORT OF THE TREASURER OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

January 1, 1915, to January 1, 1916.

Receipts.

Cash on hand, January 1, 1915			$1521 47
Annual dues and Journal, 1913 (July 1, 1913, to Jan. 1, 1914)	$2 50		
Annual dues and Journal, 1914 (Jan. 1, 1914, to Jan. 1, 1915)	275 00		
Annual dues and Journal, 1915 (Jan. 1, 1915, to Jan. 1, 1916)	8740 00		
Annual dues and Journal, 1916 (Jan. 1, 1916, to Jan. 1, 1917)	2170 00	$11,187 50	
Dues only of the A. Ph. A., 1915 (Jan. 1, 1915, to Jan. 1, 1916)		52 00	
Miscellaneous dues of the A. Ph. A.		9 25	
1 parchment Certificate of Membership @ $5 00	5 00		
4 paper Certificates of Membership @ $3 00	12 00	17 00	
National Formulary (III)		1524 98	
Gold Membership Badges and Bars		61 50	
Proceedings		131 02	
Journal Advertising		3467 45	
Journal Subscriptions		152 88	
Miscellaneous		119 45	
Interest on St. Louis Bonds in Current Fund	400 00		
Interest on deposit in International Bank of St. Louis	156 60	556 60	
Bank exchange paid with dues		1 15	
Bound volumes of Journal		4 00	
Reprints of Journal		12 50	
Sale of 34 gold Membership Buttons @ $1 00	34 00		
Sale of 66 plated Membership Buttons @ 25 cents	16 50		
Sale of 35 plated Membership Pins @ 25 cents	8 75	59 25	
Centennial Fund (Interest on Massachusetts State Bonds)	30 00		
Centennial Fund (Deposited for Disbursement. Edward Kremers)	100 00		
Life Membership Fund (Interest on Massachusetts State Bonds)	390 00		
Ebert Prize Fund (Deposited for Disbursement. E. N. Gathercoal)	40 00	560 00	
Ebert Legacy Fund (Interest on Bonds)	80 00		
Ebert Legacy Fund (Deposited for Disbursement)	18 53		
Ebert Legacy Fund (Sale of Lot in Winnetka, Illinois)	500 00		
Ebert Legacy Fund (Reimbursed for expenses paid on Lot after sold)	119 81	718 34	

St. Louis International Bank Interest on Funds, from January 1, 1915, to January 1, 1916.

Ebert Legacy Fund	$40 35		
Procter Monument Fund	77 60		
Rice Memorial Fund	2 35	120 30	18,755 17
Total			$20,276 64

Disbursements by Voucher Checks.

Jan.	5.	Check 2452	W. B. Day, clerical expenses	$32 00	
			Membership	5 00	
			Printing, postage and stationery	26 62	
			National Formulary (III)	1 44	
			Freight, express and drayage	5 12	
			Miscellaneous	4 00	$74 18
“	5.	“ 2453	B. R. Christian, freight, express and drayage		10 00
“	5.	“ 2454	W. T. Robinson, membership	3 50	
			Printing, postage and stationery	2 25	5 75
“	23.	“ 2455	Louis C. Hesse, printing, postage and stationery		9 00
“	23.	“ 2456	Stoneman Press Co., printing, postage and stationery	3 00	
			Journal (a)	475 46	478 46
“	23.	“ 2457	Bucher Engraving & Mfg. Co., Journal (a)		20 25
“	23.	“ 2458	Ernest C. Marshall, salaries		187 50
“	23.	“ 2459	Ernest C. Marshall, clerical expenses	60 00	
			Printing, postage and stationery	5 00	
			Journal (a)	17 88	82 88
“	24.	“ 2460	W. T. Robinson, membership	15 50	
			Printing, postage and stationery	8 50	24 00
“	24.	“ 2461	Louis C. Hesse, printing, postage and stationery		13 75
“	24.	“ 2462	W. T. Robinson, membership		34 50
Feb.	6.	“ 2463	George Wirsing, printing, postage and stationery		15 00
“	6.	“ 2464	George M. Beringer, Committee on Unofficial Standards		22 47
“	6.	“ 2465	Title Guaranty Trust Co., miscellaneous		5 00
“	6.	“ 2466	E. F. Greathead, printing, postage and stationery		11 90
“	6.	“ 2467	W. B. Day, clerical expenses	40 00	
			National Formulary (III)	1 89	
			Membership	2 36	
			Printing, postage and stationery	10 00	
			Miscellaneous	3 85	58 10
Feb.	12.	“ 2468	Wm. A. Hall, membership		57 00
“	12.	“ 2469	Ohio State Telephone Co., Journal (d)		10 00
“	12.	“ 2470	Bucher Engraving & Mfg. Co., Journal (a)		25 88
“	12.	“ 2471	E. C. Marshall, salaries		187 50
“	12.	“ 2472	E. C. Marshall, Journal (b)	75 00	
			“ (c)	2 00	
			“ (d)	1 11	78 11
“	12.	“ 2473	Stoneman Press Co., Journal (a)	443 93	
			“ (c)	3 00	
			Membership	10 00	456 93
“	12.	“ 2474	Henry M. Whelpley, printing, postage and stationery	69 10	
			Miscellaneous	17 05	86 15
“	20.	“ 2475	W. T. Robinson, membership	3 50	3 50
“	20.	“ 2476	Louis C. Hesse, printing, postage and stationery		6 75

March	2.	Check 2477	W. T. Robinson, membership		$14 50
"	10.	" 2478	W. B. Day, clerical expenses	$32 00	
			Printing, postage and stationery	32 00	
			Membership	4 92	
			National Formulary (III)..................	1 66	
			Miscellaneous	1 08	
			Journal for Reporter on Prog. of Ph........	19 35	91 01
"	13.	" 2479	Bucher Engraving & Mfg. Co., Journal (a)		11 63
"	13.	" 2480	Hammond Typewriter Co., Journal (d) ...		1 50
"	13.	" 2481	Stoneman Press Co., Journal (a)		402 80
"	13.	" 2482	E. C. Marshall, salaries		187 50
"	13.	" 2483	E. C. Marshall, Journal (b)	53 33	
			" (c)	29 90	83 23
"	16.	" 2484	A. J. Eggers, Education and Legislation		4 75
April	10.	" 2485	W. T. Robinson, membership		5 50
"	10.	" 2486	Louis C. Hesse, printing, postage and stationery		2 75
"	10.	" 2487	J. B. Lippincott Company, National Formulary (IV)		25 00
"	10.	" 2488	W. T. Robinson, membership		9 00
"	10.	" 2489	Louis C. Hesse, printing, postage and stationery		2 75
"	10.	" 2490	H. M. Whelpley, printing, postage and stationery	25 05	
			Miscellaneous	5 75	30 80
"	10.	" 2491	W. B. Day, clerical	32 00	
			Membership	2 33	
			National Formulary (III)..................	3 00	
			Printing, postage and stationery	10 00	
			Miscellaneous	6 55	53 88
"	10.	" 2492	J. H. Beal, printing, postage and stationery ..	12 65	
			Miscellaneous	12 33	24 98
"	13.	" 2493	Wickersham Printing Co., National Formulary (III)...........................		62 27
"	13.	" 2494	Louis C. Hesse, printing, postage and stationery		5 75
"	13.	" 2495	Wm. B. Day, travelling expenses		19 00
"	13.	" 2496	Bucher Engraving & Mfg. Co., Journal (a) ..		8 92
"	13.	" 2497	Stoneman Press Co., Journal (a)	464 22	
			" (c)	5 00	469 22
"	13.	" 2498	Ernest C. Marshall, salaries		187 50
"	13.	" 2499	Ernest C. Marshall, Journal (b)	67 50	
			" (c)	20 03	
			" (d)	6 20	93 73
"	21.	" 2500	Ernest C. Marshall, Journal (d)		12 00
"	21.	" 2501	E. L. Newcomb, Secretary, membership		16 00
May	10.	" 2502	E. F. Greathead, printing, postage and stationery		11 90
"	10.	" 2503	Stoneman Press Co., Women's Section		12 50
"	10.	" 2504	W. B. Day, printing, postage and stationery	5 00	
			Clerical	40 00	
			National Formulary (III)..................	5 45	
			Miscellaneous	4 91	55 36

May	14.	Check	2505	J. W. England, printing, postage and stationery	$40 80	
				Miscellaneous	2 46	$43 26
“	14.	“	2506	W. T. Robinson, Year-Book		3 50
“	14.	“	2507	Ernest C. Marshall, salaries		187 50
“	31.	“	2508	A. J. Eggers & Co., Education and Legislation		3 00
“	19.	“	2509	Bucher Engraving & Mfg. Co., Journal (a)		14 30
“	19.	“	2510	Stoneman Press Co., Journal (a)	403 93	
				“ (c)	26 05	429 98
“	19.	“	2511	E. G. Eberle, salaries		291 67
“	19.	“	2512	E. G. Eberle, Journal (b)	45 00	
				“ (c)	25 44	
				“ (d)	1 00	71 44
June	8.	“	2513	George M. Beringer, Unofficial Standards		23 27
“	8.	“	2514	A. J. Eggers & Co., Section on Commercial Interests		6 00
“	8.	“	2515	(Cancelled)		
“	8.	“	2516	C. A. Apmeyer, membership		27 00
“	8.	“	2517	Wm. B. Day, clerical	32 00	
				National Formulary (III)	2 18	
				Miscellaneous	2 16	
				Year-Book No. 2	1 35	37 69
“	17.	“	2518	W. T. Robinson, printing, postage and stationery		8 50
“	17.	“	2519	Whitehead & Hoag Co., buttons and pins		47 18
“	17.	“	2520	E. G. Eberle, salaries		291 67
“	17.	“	2521	Stoneman Press Co., Journal (a)	428 11	
				“ (c)	2 39	430 50
“	17.	“	2522	E. G. Eberle, Journal (a)	3 05	
				“ (b)	30 00	
				“ (c)	38 76	
				“ (d)	1 22	73 03
“	17.	“	2523	Louis C. Hesse, printing, postage and stationery		5 75
July	9.	“	2524	H. M. Whelpley, printing, postage and stationery	49 80	
				Miscellaneous	10 40	60 20
“	9.	“	2525	H. M. Whelpley, salaries		500 00
“	9.	“	2526	E. F. Greathead, printing, postage and stationery		6 90
“	9.	“	2527	W. T. Robinson, printing, postage and stationery		14 50
“	9.	“	2528	E. G. Eberle, Journal (b)		30 00
“	9.	“	2529	John Simpson, Journal (a)		24 50
“	9.	“	2530	C. Lewis Diehl, salaries		600 00
“	9.	“	2531	W. B. Day, salaries		375 00
“	9.	“	2532	J. W. England, salaries		150 00
	9	“	2533	H. K. Myers, National Formulary (IV)		2 75
“	9.	“	2534	W. B. Day, printing, postage and stationery	16 00	
				Clerical	32 00	
				National Formulary (III)	2 64	
				Miscellaneous	5 21	
				Year-Book No. 2	1 02	56 87
“	12.	“	2535	Cullom & Gehertner, membership		17 50
“	12.	“	2536	E. F. Greathead, printing, postage and stationery		4 00

Aug.	4.	Check	2537	E. F. Greathead, printing, postage and stationery		$11 90
"	4.	"	2538	Edsel A. Ruddiman, membership		8 40
"	4.	"	2539	E. G. Eberle, Journal (b)	$60 00	
				" (c)	31 26	
				" (d)	87	92 13
"	4.	"	2540	E. G. Eberle, salaries		291 67
"	4.	"	2541	Stoneman Press Co., Journal (a)		373 62
"	4.	"	2542	Wm. K. Martin, Journal (b)		5 00
"	4.	"	2543	P. H. Utech, membership		3 40
"	4.	"	2544	Louis C. Hesse, printing, postage and stationery		38 50
"	4.	"	2545	Norbert Mueller, from Centennial Fund for Research Work on Medicinal Plants, etc.		33 33
"	4.	"	2546	J. H. Beal, printing, postage and stationery		2 00
"	4.	"	2547	A. H. Fetting, badges and bars		18 00
"	4.	"	2548	H. M. Whelpley, printing, postage and stationery	34 18	
				Miscellaneous	4 00	
				Express	22	38 40
"	24.	"	2549	Wm. B. Day, printing, postage and stationery	5 00	
				Clerical	40 00	
				National Formulary (III)	1 79	
				Miscellaneous	2 50	
				Year-Book No. 2	30	49 59
"	24.	"	2550	E. G. Eberle, salaries		291 67
"	24.	"	2551	Geo. M. Beringer, Unofficial Standards		15 40
"	24.	"	2552	Thos. F. Main, printing, postage and stationery		12 61
"	24.	"	2553	Stoneman Press Co., Journal (a)		401 84
"	24.	"	2554	E. G. Eberle, Journal (a)	8 00	
				" (b)	60 00	
				" (c)	9 15	
				" (d)	1 62	78 77
Sept.	3.	"	2555	J. W. England, printing, postage and stationery		13 96
"	3.	"	2556	Louis C. Hesse, certificates		21 25
"	3.	"	2557	Norbert Mueller, Centennial Fund (for Research Work on Medicinal Plants, etc.)		33 33
"	3.	"	2558	Wickersham Printing Co., National Formulary (III)		136 15
"	3.	"	2559	H. M. Whelpley, printing, postage and stationery	22 00	
				Miscellaneous	9 70	31 70
"	3.	"	2560	Wm. B. Day, printing, postage and stationery	5 00	
				Clerical	32 00	
				National Formulary (III)	34	
				Miscellaneous	4 98	
				Express	5 35	47 67
"	3.	"	2561	The Ten Bosch Co., printing, postage and stationery		77 50
"	9.	"	2562	Louis C. Hesse, printing, postage and stationery		6 25

Sept.	9.	Check	2563	E. K. Thiesing, Section on Commercial Interests		$11 50
"	10.	"	2564	H. Engelhardt, Section on Scientific Papers .		18 82
"	10.	"	2565	J. W. England, travelling expenses		175 00
"	10.	"	2566	Wm. B. Day, travelling expenses		129 50
"	14.	"	2567	C. Lewis Diehl, National Formulary (Honorarium) (IV)		500 00
"	14.	"	2568	E. G. Eberle, travelling expenses		137 50
"	14.	"	2569	E. G. Eberle, salaries		291 67
"	14.	"	2570	E. G. Eberle, Journal (a)	$15 40	
				" (b)	60 00	
				" (c)	16 18	91 58
"	14.	"	2571	Stoneman Press Co., Journal (a)		384 87
"	14.	"	2572	Louis C. Hesse, printing, postage and stationery		4 50
"	14.	"	2573	Reeves Printing Co., printing, postage and stationery		6 00
"	20.	"	2574	C. Lewis Diehl, salaries		200 00
"	20.	"	2575	E. N. Gathercoal, Ebert Prize Fund		40 00
"	20.	"	2576	C. Lewis Diehl, National Formulary (IV)...	22 19	
				Year-Book	2 36	
				Journal for Reporter on Prog. of Ph.......	2 54	27 09
"	20.	"	2577	National Committee on Pharmaceutical Syllabus		25 00
"	20.	"	2578	Buxton & Skinner, printing, postage and stationery		2 00
"	20.	"	2579	W. T. Robinson, printing, postage and stationery		31 50
"	20.	"	2580	Fidelity & Deposit Co. of Md., Premium on Treasurer's Bond		37 50
"	24.	"	2581	E. N. Gathercoal, membership		15 00
"	24.	"	2582	H. M. Whelpley, travelling expenses	139 50	
				Miscellaneous	1 37	140 87
"	29.	"	2583	A. H. Fetting, badges and bars		15 00
"	29.	"	2584	E. F. Greathead, printing, postage and stationery		23 80
"	29.	"	2585	Lehnhardt & Co., stenographers		395 15
Oct.	4.	"	2586	Louis C. Hesse, printing, postage and stationery		2 75
"	4.	"	2587	J. H. Beal, printing, postage and stationery		5 00
"	7.	"	2588	Wm. B. Day, printing, postage and stationery	81 00	
				Clerical	32 00	
				National Formulary (III)	3 23	
				Miscellaneous	15 60	
				Express	5 91	
				Year-Book No. 2	2 22	139 96
"	11.	"	2589	Eschenbach Printing Co., Year-Book No. 2 .		2500 00
"	11.	"	2590	Louis C. Hesse, printing, postage and stationery		4 50
"	11.	"	2591	E. G. Eberle, salaries	291 67	
				Journal (a)	9 55	
				" (b)	60 00	
				" (c)	27 42	388 64
"	11.	"	2592	A. J. Eggers & Co., Education and Legislation		9 50

Oct.	11.	Check	2593	Eschenbach Printing Co., printing, postage and stationery	$54 50	
				Freight, express and drayage	2 81	$57 31
"	11.	"	2594	E. F. Greathead, printing, postage and stationery		6 90
"	11.	"	2595	H. M. Whelpley, printing, postage and stationery	43 20	
				Miscellaneous	2 70	45 90
"	11.	"	2596	Stoneman Press Co., Journal (a)		417 55
"	18.	"	2597	Louis C. Hesse, printing, postage and stationery		10 00
"	25.	"	2598	Louis C. Hesse, printing, postage and stationery		4 25
"	27.	"	2599	Louis C. Hesse, printing, postage and stationery		6 75
Nov.	3.	"	2600	John Block, certificates		5 00
"	6.	"	2601	Norbert Mueller, Centennial Fund (for Research Work on Medicinal Plants, etc.)		33 34
"	6.	"	2602	Buxton & Skinner, printing, postage and stationery		12 10
"	6.	"	2603	Louis C. Hesse, printing, postage and stationery		1 50
"	6.	"	2604	W. B. Day, printing, postage and stationery	1 95	
				Clerical	40 00	
				National Formulary (III)	1 62	
				Miscellaneous	90	
				Express	4 02	
				Badges and bars	60	49 09
"	6.	"	2605	W. T. Robinson, printing, postage and stationery		5 00
"	10.	"	2606	Title Guaranty Trust Co., miscellaneous		5 00
"	10.	"	2607	E. F. Greathead, printing, postage and stationery		11 90
"	15.	"	2608	E. G. Eberle, Journal (a)	6 40	
				" (b)	60 00	
				" (c)	20 11	
				Printing, postage and stationery	4 81	91 32
"	15.	"	2609	Louis C. Hesse, printing, postage and stationery		2 75
"	15.	"	2610	Stoneman Press Co., Journal (a)	421 82	
				Printing, postage and stationery	27 50	
				Scientific Section	2 50	451 82
"	15.	"	2611	E. G. Eberle, salaries		291 67
"	23.	"	2612	Wilbur L. Scoville, Conference of Committee on National Formulary (IV)		69 50
"	23.	"	2613	Otto Raubenheimer, Conference of Committee on National Formulary (IV)		6 00
"	23.	"	2614	M. I. Wilbert, Conference of Committee on National Formulary (IV)		6 12
"	23.	"	2615	S. L. Hilton, Conference of Committee on National Formulary (IV)		9 30
"	29.	"	2616	W. T. Robinson, membership		15 50
"	29.	"	2617	Chas. F. Mann, membership		7 00
"	29.	"	2618	W. B. Day, printing, postage and stationery	5 00	
				Clerical	32 00	
				National Formulary (III)	3 28	
				Miscellaneous	1 35	
				Freight, drayage and express	80	42 43

Dec.	6.	Check 2619	Louis C. Hesse, printing, postage and stationery		$14 50
"	10.	" 2620	Wickersham Printing Co., National Formulary (III)		17 19
"	10.	" 2621	J. W. England, printing, postage and stationery	$53 20	
			Miscellaneous	6 48	
			Freight, drayage and express	1 41	61 09
"	20.	" 2622	E. G. Eberle, Journal (b)	60 00	
			" (c)	20 05	80 05
"	20.	" 2623	E. G. Eberle, salaries		291 67
"	20.	" 2624	Stoneman Press Co., Journal (a)		430 73
"	20.	" 2625	Louis C. Hesse, printing, postage and stationery		3 75
"	20.	" 2626	W. T. Robinson, printing, postage and stationery		3 00
"	21.	" 2627	Stoneman Press Co., printing, postage and stationery		15 50
"	24.	" 2628	Louis C. Hesse, printing, postage and stationery		5 50
"	29.	" 2629	A. H. Fetting, badges and bars		2 80
"	29.	" 2630	Eschenbach Printing Co., Year-Book		490 20
"	31.	" 2631	J. W. England, salaries		150 00
"	31.	" 2632	Wm. B. Day, salaries (paid in 1916)		
"	31.	" 2633	Louis C. Hesse, printing, postage and stationery		3 50
"	31.	" 2634	Louis C. Hesse, printing, postage and stationery		1 50
"	31.	" 2635	E. F. Greathead, printing, postage and stationery		15 50
"	31.	" 2636	J. H. Beal, printing, postage and stationery	5 00	
			National Drug Trade Conference	78 28	83 28
	Total				$18,930 75

Cash Received and Disbursed for Ebert Legacy Fund by Check.

Jan.	5.	Check 2119	Theodore Flynn, village collector, opening of Woodland Avenue	$18 53	

Cash Received and Disbursed to Funds. (January 1, 1915, to January 1, 1916.)

Centennial Fund (interest on Massachusetts State Bonds)	$30 00		
Life Membership Fund (interest on Massachusetts State Bonds)	390 00		
Ebert Legacy Fund (interest on St. Louis Bonds)	80 00	500 00	

St. Louis International Bank Interest on Funds, January 1, 1915, to January 1, 1916.

Procter Monument Fund	$77 60		
Rice Memorial Fund	2 35		
Ebert Legacy Fund	40 35	120 30	

Check Received from T. N. Jamieson, November 3, 1915.

Ebert Legacy Fund (for sale of lot in Winnetka, Ill.)	$500 00		
Ebert Legacy Fund (reimbursed for expenses on lot after sold)	119 81	619 81	1258 64
Total amount of disbursements			$20,189 39

SUMMARY OF DISBURSEMENTS.

Salaries		$5245 86	
Printing, postage and stationery		1143 98	
Clerical expense, Secretary's office		476 00	
National Formulary III Edition	$244 13		
National Formulary IV Edition	640 86	884 99	
Miscellaneous expenses		135 33	
Drayage, freight and express		35 64	
Stenographers for Annual Meeting		395 15	
Travelling expenses		600 50	
Committee on Membership		277 41	
Committee on Unofficial Standards		61 14	
Year-Book No. 2		3000 95	
Membership gold badges and bars		36 40	
Certificates of Membership		26 25	
Premium on Treasurer's Bond		37 50	
National Drug Trade Conference		78 28	
Pharmaceutical Journals for Reporters on Progress of Pharmacy		21 89	
Section on Scientific Papers		21 32	
Section on Education and Legislation		17 25	
Section on Commercial Interests		17 50	
Women's Section		12 50	
National Syllabus Committee		25 00	
Membership buttons and pins		47 18	
Centennial Fund for Research Work on Cultivation of Medicinal Plants, etc.		100 00	
Journal (a) Publication	5214 64		
Journal (b) Clerical	665 83		
Journal (c) Printing, postage and stationery	276 74		
Journal (d) Freight, drayage and miscellaneous	35 52	6192 73	$18,890 75
To Life Membership Fund		390 00	
To Centennial Fund		30 00	
To Ebert Legacy Fund		80 00	500 00
To Ebert Legacy Fund (sale of lot in Winnetka, Ill.)		500 00	
To Ebert Legacy Fund (reimbursed for expense paid on lot after sold)		119 81	619 81
Payment out of Ebert Legacy Fund for Street Improvement			18 53
Ebert Prize Fund (prize to E. N. Gathercoal)			40 00

International Bank Interest from January 1, 1915, *to January* 1, 1916.

Ebert Legacy Fund	$40 35	
Procter Monument Fund	77 60	
Rice Memorial Fund	2 35	120 30
Total amount of disbursements		$20,189 39
Cash on hand, January 1, 1916		87 25
Total		$20,276 64

American Pharmaceutical Association Expenditures and Appropriations.
January 1, 1915, *to January* 1, 1916.

		Expenditures	Appropriations
Salaries		$5245 86	$6625 00
Printing, postage and stationery		1143 98	1143 98
Clerical expense, Secretary's office		476 00	416 00
National Formulary III Edition	$244 13		
National Formulary IV Edition, Lewis C. Diehl Honorarium	500 00		
National Formulary IV Edition	140 86	884 99	1600 00

	Expenditures	Appropriations
Miscellaneous expenses	$135 33	$200 00
Drayage, freight and express	35 64	54 85
Stenographers for 1915 Annual Meeting	395 15	395 15
Travelling expenses	600 50	600 00
Committee on Membership	277 41	277 41
Committee on Unofficial Standards	61 14	100 00
Year-Book, 1913	3000 95	3000 95
Membership gold badges and bars	36 40	50 00
Certificates of Membership	26 25	50 00
Premium on Treasurer's Bond	37 50	50 00
National Drug Trade Conference	78 28	200 00
Pharmaceutical Journals for Reporter on Progress of Pharmacy	21 89	35 00
Section on Scientific Papers	21 32	25 00
Section on Education and Legislation	17 25	25 00
Section on Commercial Interests	17 50	25 00
Section on Practical Pharmacy	.....	25 00
Section on Historical Pharmacy	.....	22 59
Committee on Pharmacopœias and Formularies	.....	25 00
Women's Section	12 50	50 00
National Syllabus Committee	25 00	25 00
Membership buttons and pins	47 18	50 00
Centennial Fund for Research Work on Plants, etc.	100 00	100 00
Journal (a) Publication	5214 64	5214 64
Journal (b) Clerical	665 83	685 36
Journal (c) Printing, postage and stationery	276 74	450 00
Journal (d) Freight, drayage and miscellaneous	35 52	250 00
	$18,890 75	$21,770 93
Appropriations	21,770 93	
Expenditures	18,890 75	
Unexpended balance	$2880 18	

$60.00 of this expense was incurred in 1914 by the previous General Secretary and cannot be charged to the appropriations for 1915.

The A. Ph. A. Permanent Funds, January 1, 1916.

	1915	1916	Increase
Life Membership Fund	$20,363 05	$21,058 35	$695 30
Endowment Fund	6063 51	6308 45	244 94
Ebert Legacy Fund	3290 42	4012 05	721 63
Centennial Fund	2836 35	2941 13	104 78
Ebert Prize Fund	1081 38	1084 26	2 88
	$33,634 71	$35,404 24	$1769 53

The Association Assets, January 1, 1916.

St. Louis City Bonds	$10,000 00		
Cash in bank, January 1, 1916	87 25		
Available assets		$10,087 25	
Permanent funds		35,404 24	
Total A. Ph. A. assets			$45,491 49

Funds Held in Trust by A. Ph. A.

Procter Monument Fund	$7744 00	
Rice Memorial Fund	173 26	
College Prize Fund	36 96	$7954 22
Grand total of assets and trust funds, January 1, 1916		$53,445 71

DETAILED STATEMENT OF THE SEVERAL AMERICAN PHARMACEUTICAL ASSOCIATION FUNDS.

Life Membership Fund. (Established in 1870.)

Massachusetts 3% Registered State Bonds			$13,000 00
On hand in Boston Penny Savings Bank, January 1, 1915		$7363 05	
Interest on deposit in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915	$305 30		
Interest on Massachusetts State Bonds, January 1, 1915, to December 31, 1915	390 00		
Deposited in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915		695 30	
Balance on hand in Boston Penny Savings Bank, January 1, 1916			8058 35
Total on hand, January 1, 1915			$21,058 35

Ebert Prize Fund. (Established in 1873.)

On hand, Boston Penny Savings Bank, January 1, 1915		$1081 38
Interest on deposit in Boston Penny Savings Bank	$42 88	
Cash prize to E. N. Gathercoal	40 00	2 88
Total on hand, January 1, 1916		$1084 26

Centennial Fund. (Established in 1877.)

Massachusetts 3% registered bonds			$1000 00
On hand in Boston Penny Savings Bank, January 1, 1915		$1836 35	
Interest on bonds, January 1, 1915, to December 31, 1915	$30 00		
Interest on deposit in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915	74 78		
Deposited in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915		104 78	
Balance on hand in Boston Penny Savings Bank, January 1, 1916			1941 13
Total on hand, January 1, 1916			$2941 13

Endowment Fund. (Established in 1906.)

On hand, January 1, 1915	$6063 51
Interest on deposit in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915	244 94
Total on hand, January 1, 1916	$6308 45

Ebert Legacy Fund. (Established in 1909.)

St. Louis City registered 4% gold bonds				$2000 00
On hand, in International Bank, January 1, 1915			$1290 42	
Interest on St. Louis bonds	$80 00			
Interest on deposit in International Bank, January 1, 1915, to December 31, 1915	40 35			
Sale of Lot 14, Block 10, in Winnetka, Illinois	500 00			
Reimbursed for expenses paid on lot after sold	119 81	$740 16		
Disbursed for opening of Woodland Avenue		18 53		
Net income			721 63	
Balance on hand, in International Bank, January 1, 1916				2012 05
Total on hand, January 1, 1916				$4012 05

Procter Monument Fund. (Established in 1904.)
(Held in Trust.)

On time deposit in International Bank of St. Louis, January 1, 1915	$4812 46	
Interest on time deposit at 4%, January 1, 1915, to December 31, 1915	192 50	
Certificate of Deposit No. 63,008, International Bank of St. Louis		$5004 96
Deposit in International Bank of St. Louis, January 1, 1915	2661 44	
Interest on deposit in International Bank, January 1, 1915, to December 31, 1915	77 60	
Balance on hand in International Bank, January 1, 1916		2739 04
Total on hand, January 1, 1916		$7744 00

College Prize Fund. (Established in 1905.)
(Held in Trust.)

On hand, January 1, 1915	$35 54
Interest on deposit in Boston Penny Savings Bank, January 1, 1915, to December 31, 1915	1 42
Total on hand, January 1, 1916	$36 96

Rice Memorial Fund. (Transferred from U. S. P. C. in 1913.)
(Held in Trust.)

On hand, January 1, 1915	$170 91
Interest on deposit in International Bank of St. Louis, January 1, 1915, to December 31, 1915	2 35
Total on hand, January 1, 1916	$173 26

H. M. Whelpley, *Treasurer.*

PRESENTATION COPIES OF PHARMACOPŒIAS FOR LIBRARIES.

The Board of Trustees of the United States Pharmacopœial Convention places at the disposal of libraries the reserve copies of the United States Pharmacopœia, Seventh Revision (1890), and those copies of the United States Pharmacopœia, Ninth Revision (1900), having a four-page supplement which was incorporated in the text of later prints. Requests should be sent to the secretary of the Board, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo., and will be filled in the order of receipt. Fifty cents per copy should accompany the request, to cover expense of packing and transportation.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CHICAGO.

The regular monthly meeting of the Chicago Branch of the American Pharmaceutical Association was held May 26.

James H. Wells of the Legislative Committee presented the following resolutions:

(1) Whereas, Graduation pre-requisite laws are now in successful operation in New York, Pennsylvania, Ohio, Rhode Island, and North Dakota; and

Whereas, in some fifteen other states, graduation pre-requisite laws are proposed and with excellent prospects of enactment at the coming sessions of the legislatures of these states:

Therefore be it resolved that the Chicago Branch of the American Pharmaceutical Association respectfully urges the Illinois Pharmaceutical Association to re-endorse the principle of graduation pre-requisite and to instruct its legislative committee to formulate a pre-requisite bill along the lines of the bill introduced by Senator Boehm (as Senate bill No. 83 in the last session of the legislature) and to introduce this bill and to earnestly work for its passage at the coming session of the Illinois Legislature: And that this pre-requisite bill be constituted a separate and distinct measure.

(2) Resolved, That the Chicago Branch favors a State tax on coupons and trading stamps and similar premium schemes.

Mr. Wm. Gray moved the adoption of these resolutions, which motion was duly seconded, discussed and carried.

Mr. A. H. Clark presented the following resolution and moved its adoption:

(3) Whereas, at the Annual Meeting of the American Pharmaceutical Association which will be held in Atlantic City in September, 1916, the Chicago Branch of the American Pharmaceutical Association will extend to the parent association through General Secretary Day an invitation to hold the *1918 Annual Meeting* in Chicago, and

Whereas, this will be the twenty-fifth anniversary of the last American Pharmaceutical Association meeting held in Chicago, namely, during the World's Columbian Exposition in 1893, and

Whereas, the advantages of such a meeting to pharmacy and pharmacists in Illinois is obvious;

Therefore be it resolved by the Chicago Branch, American Pharmaceutical Association, at its regular monthly meeting, that the Illinois Pharmaceutical Association be requested to join in this invitation to the American Pharmaceutical Association, and

Be it further resolved that the Chicago Retail Druggists' Association, the Chicago Veteran Druggists' Association and the Chicago Drug Club also be requested to join in this invitation.

The motion to adopt this resolution was seconded and carried by a unanimous vote.

E. N. GATHERCOAL, *Secretary.*

DENVER.

The May meeting of the Denver Branch of the American Pharmaceutical Association was held May 16 at the Adams Hotel and, as usual, a dinner preceded the meeting.

The following members and guests were present:

Messrs. C. H. Skinner, John A. Martin, S. T. Hensel, Lee Perkins, Chas. J. Clayton, C. Van Zandt, John Best, A. W. Clark, L. Wilson, L. L. Alkire, M. Becker, Geo. Gregory, A. D. Baker, M. P. Givens, David Brown, and F. J. Lord. Mr. Williamson, Federal Narcotic Inspector, Mr. Trimble, Credit Man of the Denver Dry Goods Company, Mr. Schilling, of the German American Trust Company, and Dr. Engle, Professor of Chemistry at the University of Colorado were guests of the Branch.

In the absence of President Hover, Vice-president Clark called the meeting to order and, after the reading and approval of the minutes of the previous meeting, called on the Secretary for a reading of communications. A letter from the American Fair Trade League was read. The Secretary also informed the Branch that he had received a long distance call from Prof. Washburn, expressing his regret in not being able to be present and asking him to convey to the Branch his personal sentiments in the matter of establishing a College of Pharmacy in the City of Denver by the University of Denver. Prof. Washburn felt that the Branch should act in reference to this proposed school with but one thought in mind and base their judgment on whatever they deemed best for the interest of pharmacy in Denver and Colorado. He hoped we would not allow the fact that the Branch was instrumental in starting the department of pharmacy in the University of Colorado, at Boulder, to influence our decision. Various members expressed their sincere appreciation of Dr. Washburn's position in this matter.

The President then called on Mr. Clayton to report for the Legislative Committee the action taken on the Steven's Bill and similar Legislation by the Denver Civic and Commercial Organizations. Mr. Clayton was not informed as to what report the Denver Civic Organization will send to the U. S. Chamber of Commerce; however, a vote of those in attendance was unfavorable, 76 for and 79 against.

Mr. Wilson, Chairman of the Membership Committee, reported four applications for associate membership: Arthur D. Baker, David Brown, J. Frederick McDonald, Lee Perkins; C. Van Zandt, who was present at this meeting, promised to become a member. On motion they were elected to Associate Membership by unanimous vote.

Mr. Clark then called for a report of the Committee on the third year course in Pharmacy and Mr. Nitardy, Secretary of this Committee, read the report recently made to the University on this course.

The report was discussed at some length by several members, after which Mr. Clark called on Mr. Williamson, who spoke of recent Harrison Law decisions and reported some experiences. He concluded by saying that he had been informed that the district consisting of Colorado and Wyoming, according to the Federal report, was one of the cleanest districts in the United States in so far as the narcotic situation was concerned.

Mr. Trimble spoke on a subject which, while not pharmaceutical, proved very interesting, namely, the "Biography of Pancho Villa." The point brought out in Mr. Trimble's address was that while Villa had been a bad man in the fullest sense of the word, there nevertheless was in him an element of greatness to be admired. Mr. Schilling also chose a biographical sketch for his subject but not a character of modern history, "The Life and Teachings of Socrates."

Mr. Clark then thanked Messrs. Trimble and Schilling in behalf of the Branch for their presence and spoke of the value of addresses of this nature, which proved entertaining and a diversion from routine business.

Dr. Engle, Professor of Chemistry, University of Denver, was then introduced by Vice-president Clark. Professor Engle stated that the suggestion of establishing a department of Pharmacy in the University of Denver had come to them from Mr. Van Zandt. On considering the matter the University was ready to organize such a department provided they would be in position to establish a school that would be a credit to them and the City of Denver, capable of giving a course that would admit its graduates to all states and that the drug trade of the city really desired such a school. They were not anxious to start a school unless an actual need existed and the support of the pharmaceutical profession of Denver could be obtained. They would not be justified in starting a school if the present demands were fully met by the department of pharmacy of the University of Colorado, in Boulder. Mr. Clark called on Messrs. Van Zandt, Clayton, Givens, Nitardy, Wilson and others for an expression of their opinion in this matter. They were strongly in favor of the establishment of such a department in Denver, because of the opportunity afforded Denver students in being able to live at home while attending school and work in a store. It would also afford the opportunity to out-of-town students to work their way through school by doing drug store work, thereby obtaining both technical training and practical experience.

A vote was taken on the matter which proved that the Branch was unanimously in favor of the establishment of such a department. Vice-president Clark suggested that it would be best to refer the action taken by this Branch to President Hover on his return to the city, with the suggestion that a committee from the Denver Branch be appointed to work with the Denver University in an effort to establish such a department, and asked that this be put in the form of a motion, in case the Branch thought such action advisable. Mr. Nitardy moved that this course be taken, which motion was carried.

F. W. NITARDY, *Secretary.*

DETROIT.

The April meeting of the Detroit Branch of the American Pharmaceutical Association was held in the Wayne County Medical Society Building, April 21st. President Scoville presiding.

The report of the committee having in charge the sending of flowers to Dr. A. B. Lyons on his 75th birthday was received.

A letter of acknowledgment from Doctor Lyons was read.

A communication was received from Prof. Otto Raubenheimer, requesting the adoption of a resolution protesting the interference with the importation of medicine into this country.

In accordance with the by-laws, the nominating committee, whose duty it is to present at the May meeting a list of names to be voted on for officers for the ensuing year, was appointed. Wm. A. Hall, Leonard A. Seltzer, and C. A. Weaver constitute the committee.

This completed the routine business of the Branch. The regular program was then taken up.

The speaker of the evening was Dr. P. M. Hickey, ex-president of the American Röntgen Ray Society, and at the present time editor of the American Journal of Röntgenology.

Doctor Hickey's paper considered at some length the history of the discovery of the X-ray and the development of the means of producing it and of taking röntgenographs.

The Doctor also discussed the use of the Röntgen Ray in the diagnosis of disease, and by means of numerous illustrations of actual cases thrown upon the screen he showed how the X-ray assisted surgeons in many ways, as in location of fractures, discovery of foreign particles in the body, etc. Dr. Hickey, who was one of the first in this country to take up the application of the X-ray to medicine, and who has contributed much to the advance of this branch of therapeutics, is a man of national reputation. He is a master of his subject and held the interest of the audience. At the close of his address the Branch, in token of its appreciation, tendered him a vote of thanks.

A. A. WHEELER, *Secretary.*

NASHVILLE.

The regular meeting of the Nashville Branch, American Pharmaceutical Association, was held in joint session with the Nashville Drug Club in the Music Room of the Nashville Y. M. C. A., Thursday afternoon, May 18th, with D. J. Kuhn presiding.

After the minutes of the previous meeting had been read and approved the discussion of the subject of Legislation, which was so ably presented by Mr. Barrett at the last meeting, was resumed. The necessity of pharmacists being represented in legislative bodies, by some member of their profession, was strongly emphasized and it was decided to select a suitable member as a candidate for the legislature from this county.

On motion of William R. White, the Legislative Committee of the two Associations was instructed to meet with the Legislative Committee of the Tennessee Pharmaceutical Association to discuss plans for thorough coöperation in their efforts to get proper representation in the next legislature, in order that the best interests of pharmacy may be safeguarded.

The attention of the Association was called to the approaching meeting of the American Pharmaceutical Association at Atlantic City by the Secretary and the members urged to prepare papers for the meeting.

WILLIAM R. WHITE, *Secretary.*

NEW YORK.

The May meeting of the New York Branch of the American Pharmaceutical Association was called to order by President Lascoff at 8:30 o'clock, on the evening of the 8th, in the Lecture Hall of the New York College of Pharmacy.

The minutes of the previous meeting were approved as read by the Secretary.

Treasurer Weinstein submitted his report and same was received with thanks.

The following report was received from the Committee on Membership:

"Your committee begs to report that since our last meeting it has received three applications for membership in the Branch from parties who are now members of the parent association and forty-four applications for full membership.

"Since your committee was elected and appointed four months ago, it has obtained seventy-nine members. At the present time there are nineteen members of the parent association residing in Brooklyn who are not members of the New York Branch, and in Manhattan and Bronx there are forty such members, and in commuting distance of New York, there are fifty-seven members of the parent association who are not members of the New York Branch.

"Your committee has written letters to all of these parties inviting them to join with us at our monthly meetings and become members of the Branch. Should these parties fail to respond, a list of their names will be read at some future meeting, and the coöperation of the entire membership will be requested.

"Your membership committee feels that all members of the parent association living in Greater New York, or in commuting distance thereof, should be members of the New York Branch.

"The Chairman wishes to thank the members of his committee for the very hearty support they are giving, and to solicit the continuance of their interest and efforts for the remainder of the year. He is particularly anxious to receive a considerable number of additional applications between now and the Atlantic City meeting, which will be held from September 5th to 9th."

(Signed) FRANK MCCARTNEY, *Chairman.*

The report was ordered spread in full upon the minutes, and a rising vote of thanks was tendered to Chairman McCartney.

The Secretary was ordered to forward to the General Secretary the names of the following applicants for membership in the parent body:

Henry Norwich Garfield, Brooklyn; Joseph John Dolan, Concord, S. I.; Gustav Alfred Sticht, Brooklyn; August A. Wasserscheid, New York; Charles V. Sparhawk, New York; Charles J. McCloskey, Jersey City, N. J.; Edward A Fox, New York; Theophile C. Kaminski, Brooklyn; Oscar Gudis, New York; Samuel S. Lippin, New York; Franklin B. Yates, New York; Max J. Breitenbach, New York; Reginald Edgar Dyer, New York; Nathan Glazer, New York; Abraham Blank, New York; Arthur Petretti, New York; Otto H. Kuhn, New York; Benjamin Bratter, Care of Jacobson, 1204 Evergreen Avenue, New York; Frank Barabini, New York; Philip G. Breivogel, New York; Henry S. Cohen, New York; Isidore Zeiger, Care of Tannenbaum, New York; Morris Cohen, New York; Frank S. Connelly, Goshen, New York; John B. Fiorillo, New York; Solomon Friedman, New York; Harold Friedman, Jersey City, N. J.; Isidor Ganbarg, New York; Maurice Klein, New York; Louis Krasnow, Brooklyn; Edward E. LoPorto, New York; William Morris, New York; Harry Neretin, New York; Charles P. Grimm, New York; Armando Paganelli, New York; Joseph Anthony Solano, Mt. Vernon, New York; Isaac Kasreal Sellman, New York; Samuel M. Schulsinger, New York; David Soskin, New York; David R. Uran, New York; William Weinar, Mt. Vernon, New York; Edward F. Chronik, New York; Ernest Stauffen, New York; Truman A. Linck, Kansas City, Mo.

Doctor W. C. Anderson, Chairman of the Committee on Legislation, and Dr. Jacob Diner, Chairman of the Committee on Fraternal Relations, reported progress.

Dr. Diekman as Reporter on Progress of Pharmacy asked to be excused from reading his report so as to give more time to the invited guests.

Messrs. L. F. Roediger, 46 Market Street, New York; Gabriel J. Fajardo, 128 Water Street, New York; and S. M. Jacobson, 171 Fourth Street, Elizabeth, N. J., were elected to membership in the Branch.

President Lascoff introduced Dr. H. P. Hynson and his associate, Dr. J. Carlton Wolf. Dr. Hynson explained to the members his plan for the merging of all state associations into one body, to be represented in the American Pharmaceutical Association by the House of Delegates, and after asking for their support in the above plan, called upon Dr. Wolf to open the "Prescription Clinic."

The latter read and discussed about twenty prescriptions he had brought with him, and when he finished, a lively discussion ensued.

Twenty-five prescriptions were now thrown on the screen and discussed by many of the members as well as by our guests.

After extending a rising vote of thanks to Doctors Hynson and Wolf, an adjournment was taken.

Jeannot Hostmann, *Secretary.*

PHILADELPHIA.

The regular monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held Tuesday evening, May 9, 1916, at the Medico-Chirurgical College.

President Sturmer called the meeting to order at 8:30. The minutes of the previous meeting were read, corrected, and approved.

Mr. Cliffe, Chairman of the Committee on Entertainment, reported the progress his committee had made during the past two months.

Upon a suggestion contained in a communication from the Society of German Apothecaries of New York, the following resolution, proposed by Prof. Charles H. LaWall, was adopted:

Whereas the importation of medicines into the United States has been seriously interfered with by the belligerent nations, and in the majority of cases has been entirely stopped;

Whereas the suffering public in the United States is thereby deprived of much needed remedies for the cure and relief of disease;

Whereas the importation of medicinal substances to *neutral* countries should *not* be interfered with by the nations at war, provided that satisfactory guarantee be given that such supplies are not resold to belligerent countries;

Be it resolved, unanimously, at the regular meeting of the Philadelphia Branch of the American Pharmaceutical Association, May 9, 1916, that the Hon. Robert S. Lansing, Secretary of State, be earnestly requested to take immediate steps to remedy these deplorable conditions, so that the suffering humanity in our country can be supplied with much needed imported medicines, not manufactured in the United States.

In addition, it was resolved that the Secretary of State be requested to use his influence in favor of the proper amending of the Patent Laws, so as to compel foreign holders of United States patents to manufacture such products in the United States, when, for any reason, the supply is temporarily cut off, as it has been by the war which is now being waged in Europe.

The program of the evening was then taken up, and Mr. John K. Thum gave "A Review of Pharmaceutical Literature." Prof. Joseph McFarland delivered an address, illustrated by moving pictures, on "Protozoan Organisms Which Cause Certain Well-known Diseases."

A rising vote of thanks was given Mr. Thum and Prof. McFarland, after which the meeting adjourned.

J. Ed. Brewer, *Secretary.*

SAN FRANCISCO.

The San Francisco Branch of the American Pharmaceutical Association met on the evening of May 5th, to listen to an address on "Pharmacy and National Preparedness," by Captain Wayne H. Crum, Medical Corps, U. S. Army. Dr. A. S. Musante presided and a large number of pharmacists and physicians attended the meeting. The routine duties of the Hospital Corps and the work of the National Red Cross were described. Mention was also made of the bill in Congress providing for two new grades in the Hospital Corps—Master Hospital Sergeants and Hospital Sergeants, these places being open to trained men. An interesting discussion followed the address. It was moved that the directors of the California College of Pharmacy be asked to add a course in "First Aid" to the curriculum of the school.

The Branch decided not to meet during the summer months. Adjournment was taken till Thursday evening, September 14, 1916.

Clarissa M. Roehr, *Secretary.*

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 21.

PHILADELPHIA, PA., April 4, 1916.

To the Members of the Council:

Motions No. 42 (*Petition to form the Montana Branch, A. Ph. A.*) and *No.* 43 (*Additional Appropriation of* $143.98 *for Printing, Postage and Stationery for* 1915) have each received a majority of affirmative votes.

In Council Letter No. 18 (February 25, 1916), a tentative program for the sixty-fourth annual meeting of the American Pharmaceutical Association, to be held at Atlantic City, N. J., during the week of September 4 to 9, 1916, was submitted by the Committee on Program and suggestions invited.

The program as finally revised is now submitted, as follows:

Monday, September 4 (Labor Day):

7.30 P.M. Meeting of the Council.

Tuesday, September 5:

11.00 A.M. First General Session.
Meeting of Committee on Nominations.
Meeting of Committee on Resolutions.

2.00 P.M. Section on Education and Legislation.
Commercial Section.
Women's Section.

4.00 P.M. House of Delegates.

7.30 P.M. Meeting of the Council.

9.30 P.M. President's Reception.

Wednesday, September 6:

9.30 A.M. Second General Session.

12.30 P.M. Luncheon of College Alumni.

2.00 P.M. Section on Education and Legislation.
Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).
Commercial Section.

4.00 P.M. House of Delegates.

7.30 P.M. Meeting of the Council.
Joint Session of Section on Education and Legislation, A. C. P. F. and N. A. B. P.

Thursday, September 7:

9.30 A.M. Scientific Section.
Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).

11.00 A.M. House of Delegates.

2.00 P.M. Scientific Section.
Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).
Women's Section.

7.30 P.M. Meeting of the Council (Reorganization).

Friday, September 8:

9.30 A.M. Meeting of the Council.
Historical Section.
Scientific Section.

2.00 P.M. Final General Session.

Saturday, September 9:

Sightseeing.

Do you approve the above program? This will be regarded as *Motion No.* 44 (*Approval of Program for* 1916 *Annual Meeting*).

The Headquarters of the Association will be at the Hotel Chalfonte.

In this connection, the following information will be of interest:

The American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy have decided to meet in Philadelphia on Thursday, August 31st, Friday, September 1st, and Saturday, September 2nd.

The meetings of the Boards will be held on Thursday and Friday, and those of the Faculties on Friday, while on Saturday there will be a joint session of the Boards and Faculties. Additional sessions may be held during the evenings or on Monday, if necessary. The A. C. P. F. will meet in the rooms of the Philadelphia Drug Exchange, and the N. A. B. P. in the rooms of the Philadelphia Board of Trade or other rooms of the Philadelphia Bourse Building. After adjournment, the members of these bodies will go to Atlantic City to attend the sessions of the American Pharmaceutical Association the following week.

Motion No. 45 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 123. William E. Davis, Freedmen's Hospital, Washington, D. C., rec. by Wm. B. Day and J. W. England.

No. 124. Henry George G. Lescher, 2037 North Keeler Ave., Chicago, Ill., rec. by G. L. Secord and Wm. B. Day.

No. 125. Wilber Alexander Mahoney, Cocoa, Fla., rec. by E. A. Ruddiman and J. T. McGill.

No. 126. Fay Harold Elliott, 21 Medford St., Medford, Mass., rec. by Theodore J. Bradley and Elie H. LaPierre.

No. 127. Jacob Edison Good, Fourth and Bridge St., New Cumberland, Pa., rec. by Charles H. LaWall and E. Fullerton Cook.

No. 128. Niels P. Hansen, 1617 S. 17th St., Lincoln, Neb., rec. by Edith Hindman and C. W. Johnson.

No. 129. George Harvey Gift, 741 Grand Ave., cor. 8th St., Milwaukee, Wis., rec. by Adolph Spiegel and Henry A. Peters, M.D.

No. 130. Joseph Jerry Pelc, 1517 S. 57th Ave., Cicero, Ill., rec. by E. N. Gathercoal and W. B. Day.

No. 131. John Roy Keeny, Care of La. State Board of Health, New Orleans, La., rec. by Philip Asher and E. G. Eberle.

No. 132. Ira Lee Goheen, 1014 Mississippi St., Lawrence, Kansas, rec. by L. D. Havenhill and G. N. Watson.

No. 133. Herbert O. Baer, 12th and Chapline Sts., Wheeling, W. Va., rec. by Charles H. LaWall and M. R. LaWall.

No. 134. Joseph M. Feder, U. S. S. New Orleans, Bremerton, Wash., rec. by Wm. B. Day and J. F. Rupert.

No. 135. Charles Percival Datz, 474 E. 41st St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 136. Alan W. Jacks, 4800 Washington Blvd., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 137. Anthony Kartanas, 3343 Lowe Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 138. Israel Mawrence, 4914 Forestville Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 139. Maurice William Sheehy, Ph. G., National Military Hospital, Dayton, Ohio, rec. by J. H. Beal and J. W. England.

No. 140. James Francis Bradley, 1443 Ogden Ave., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 141. Miss Piedad Nogueira y Ortiz, 38 Merced St., Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 142. Miss Elisa M. Fortim, 11 Obrapia St. (altos) Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 143. Miss Luisa Calonge y Falcon, 282 moderno Neptimo St., Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 144. Joseph Poczos, 301 Hancock Ave., Bridgeport, Conn., rec. by Wm. B. Day and J. W. England.

No. 145. Harry Gasen, 74 E. 12th St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 146. Harry Benjamin Sanders, 2357 Kenilworth Ave., Norwood, Ohio, rec. by Louis Heister and Theo. D. Wetterstroem.

No. 147. Benjamin Hoyer, 1122 Central Ave., Newport, Ky., rec. by Louis Heister and Theo. D. Wetterstroem.

No. 148. John Edward Mace, 168 Duane St., New York, N. Y., rec. by Frank L. McCartney and Caswell A. Mayo.

No. 149. William Peter McNulty, 21 Gold St., Norwich, N. Y., rec. by Turner F. Currents and Frank L. McCartney.

No. 150. Florentino F. Garcia, 100 William St., New York, N. Y., rec. by Frank L. McCartney and Jeannot Hostmann.

No. 151. H. Rolff Planten, 93 Henry St., Brooklyn, N. Y., rec. by Turner F. Currens and Frank L. McCartney.

No. 152. George R. Tompkins, Hudson and Vestry Sts., New York, N. Y., rec. by Frank L. McCartney and Jeannot Hostmann.

No. 153. Burton T. Bush, 18–20 Platt St., New York, N. Y., rec. by Frank L. McCartney and W. B. Day.

No. 154. David John McMullin, Hospital Steward, U. S. Navy, Pago Pago, Tutuila, American Samoa, rec. by Wm. B. Day and J. F. Rupert.

No. 155. Lester Earl Auger, Hospital Steward, U. S. Navy, U. S. S. Hannibal, Care of Postmaster, New York, N. Y., rec. by Wm. B. Day and J. F. Rupert.

J. W. England,
Secretary of the Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 22.

Philadelphia, Pa., April 25, 1916.

To the Members of the Council:

Motions No. 44 (*Approval of Program for* 1916 *Annual Meeting*) and *No.* 45 (*Election of Members; Applications Nos.* 123 *to* 155 *inclusive*) have each received a majority of affirmative votes.

The following communication has been received (April 22) from Francis E. Bibbins, of Indianapolis:

Council of the American Pharmaceutical Association:

We, the undersigned members of the American Pharmaceutical Association, hereby petition the Council to authorize the formation of a local branch consisting of the members of the American Pharmaceutical Association residing in Indiana within a radius of eighty-five miles of Indianapolis, to be known as the Indianapolis Branch of the American Pharmaceutical Association.

J. G. Mueller, Indianapolis.
Frank H. Carter, Indianapolis.
H. L. Parmelee, Indianapolis.
Chas. W. Watkins, Indianapolis.
John S. Wright, Indianapolis.
Woods A. Caperton, Indianapolis.
E. G. Eberhardt, Indianapolis.
Theo. Zimmerman, Terre Haute.
H. W. S. Carter, Indianapolis.
Maurice P. Schwartz, Indianapolis.
Frank R. Eldred, Indianapolis.
Eric Leth, Indianapolis.
Francis A. Federer, Indianapolis.
William C. Bartholomew, Indianapolis.
Josiah Kirby Lilly, Jr., Indianapolis.
Ralph M. Reahard, Indianapolis.
Murry K. Pruyn, Indianapolis.
H. W. Rhodehamel, Indianapolis.
C. M. Warner, Indianapolis.
August Kassulke, Indianapolis.
Chas. R. Eckler, Indianapolis.
Edwin W. May, Martinsville.
Ralph W. Showalter, Indianapolis.
Fred A. Miller, Indianapolis.
Robert P. B. Lodall, Indianapolis.
Chas. J. Lynn, Indianapolis.
Francis E. Bibbins, Indianapolis.
Albert D. Thorburn, Indianapolis.
W. F. Gidley, Lafayette.
M. E. Parker, Indianapolis.
Eli Lilly, Indianapolis.
Josiah K. Lilly, Indianapolis.
Henry J. Huder, Indianapolis.
Howard R. Davis, Indianapolis.
Arthur E. Denison, Terre Haute.

Indianapolis, April 19, 1916.

Do you favor granting the above petition? It will be known as *Motion No.* 46 (*Petition to Form Indianapolis Branch, A. Ph. A.*).

Motion No. 47 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 156. Paula Coll, Compostela No. 170, Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 157. Nathan Zonies, 29th and Diamond Sts., Philadelphia, Pa., rec. by Charles H. LaWall and E. Fullerton Cook.

No. 158. Miss Antonia M. Garrigo, 1 Altarriba St., Havana, Cuba, rec. by Jose Guillermo Diaz and Jose P. Alacan.

No. 159. Otto E. Betz, S. E. Cor. Erie Ave. and Edwards Road, Cincinnati, Ohio, rec. by Clyde M. Snow and Wm. B. Day.

No. 160. Amos Bissell, Care of Essex Varnish Co., Newark, N. J., rec. by Charles Holzhauer and J. W. England.

No. 161. Ralph McDonnell Reahard, 3339 Ruckle St., Indianapolis, Ind., rec. by Frank R. Eldred and Francis E. Bibbins.

No. 162. Josiah Kirby Lilly, Jr., 1704 N. Pennsylvania St., Indianapolis, Ind., rec. by Francis E. Bibbins and Frank R. Eldred.

No. 163. Harold L. Parmelee, Y. M. C. A., Room No. 74, Indianapolis, Ind., rec. by Francis E. Bibbins and Frank R. Eldred.

No. 164. Howard R. Davis, 3812 Graceland Ave., Indianapolis, Ind., rec. by Frank R. Eldred and Francis E. Bibbins.

No. 165. Cortice M. Warner, 4357 N. Penn. St., Indianapolis, Ind., rec. by F. R. Eldred and Wm. B. Day.

No. 166. Eric Gunnar Leth, 820 N. East St., Indianapolis, Ind., rec. by Francis E. Bibbins and Frank R. Eldred.

No. 167. Woods A. Caperton, Care of Eli Lilly and Co., Indianapolis, Ind., rec. by Frank R. Eldred and Francis E. Bibbins.

No. 168. Ralph R. Thoroman, Mt. Sterling, Ill., rec. by W. B. Day and E. N. Gathercoal.

No. 169. Robert A. Schulz, 1774 Baltimore Ave., Cincinnati, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 170. John Shepard Wright, 3718 North Pennsylvania St., Indianapolis, Ind., rec. by Wm. C. Bartholomew and Frank R. Eldred.

No. 171. Frank Bolte, 1539 Baymiller St., Cincinnati, Ohio, rec. by Frank H. Freericks and Theo. D. Wetterstroem.

No. 172. Robert C. Pursell, 280 Pearl St., New York, N. Y., rec. by Frank L. McCartney and Geo. T. Riefflin.

No. 173. Zachary Joshua Loussac, 107 Front St., Juneau, Alaska, rec. by Geo. C. Diekman and Curt P. Wimmer.

No. 174. Charles Thomas Larkins, 105 East Sixth St., East Liverpool, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 175. Julius Kramer, 723 Ninth Ave., New York, N. Y., rec. by Leo H. Fried and Jeannot Hostmann.

No. 176. Joseph Albert Wolfe, 410 Chestnut St., Philadelphia, Pa., rec. by Charles H. LaWall and M. R. LaWall.

No. 177. Eugene James Cardarelli, 99 Wilson St., Brooklyn, N. Y., rec. by Frank L. McCartney and Jeannot Hostmann.

No. 178. Irwin Leonard Betzel, Corvallis, Oregon, rec. by Adolph Ziefle and M. J. Seeley.

No. 179. Lewis Nathan Brown, 115 W. 68th St., New York, N. Y., rec. by Geo. C. Diekman and Curt P. Wimmer.

No. 180. Harley Wesley Rhodehamel, 643 E. 32nd St., Indianapolis, Ind., rec. by M. K. Pruyn and Frank R. Eldred.

No. 181. Wm. J. Mooney, 101 S. Meridian St., Indianapolis, Ind., rec. by Francis E. Bibbins and Wm. C. Bartholomew.

No. 182. Lucius P. Brown, 137 Davis Ave., West New Brighton, Staten Island, N. Y., rec. by Otto Raubenheimer and Jeannot Hostmann.

No. 183. Ferdinand A. Mueller, S. W. Cor. Washington and East Sts., Indianapolis, Ind., rec. by Clyde M. Snow and August Kassulke.

No. 184. Brandegee Douglas, Hospital Steward, U. S. N., U. S. S. Scorpion, Care of Postmaster, New York, N. Y., rec. by Wm. B. Day and J. F. Rupert.

No. 185. Mortimer Bye, 2621 Sutherland Ave., Indianapolis, Ind., rec. by Francis E. Bibbins and Chas. R. Eckler.

J. W. ENGLAND,
Secretary of the Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 23.

PHILADELPHIA, Pa., May 12, 1916.

To the Members of the Council:

Motions No. 46 (*Petition to Form Indianapolis Branch, A. Ph. A.*) and *No.* 47 (*Election of Members; Applications Nos.* 156 *to* 185 *inclusive*) have each received a majority of affirmative votes.

On December 16, 1915, the Council adopted the following motion (C. L. No. 13, 47, motion No. 20): "We request our Finance Committee, with a special committee of five members to be appointed by the Chairman of the Council, to make a special study of the available assets and current expenses of the Association and see what suggestions they can make regarding the improving of the financial status of the Association."

Chairman E. G. Eberle wishes to state that: "In compliance with the vote of the Council, I have named the following on the Special Finance Committee: H. B. Mason, Detroit; F. W. Sultan, St. Louis; H. C. Christensen, Chicago; George M. Beringer, Camden, N. J.; S. L. Hilton, Washington, D. C."

Motion No. 48 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 186. E. Grace Hoffman, 13th and Linden Sts., Allentown, Pa., rec. by Charles H. LaWall and J. W. England.

No. 187. Alberto Roldan Ramirez, Farmacia El Globo, David, Chg. Rep. of Panama, rec. by Bolivar Jurado and J. V. Delgado.

No. 188. John Edward Seybert, Care of Eli Lilly and Co., Indianapolis, Ind., rec. by Wm. C. Bartholomew and Francis E. Bibbins.

No. 189. F. William Stockhaus, 2082 Fulton Road, Cleveland, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 190. Robert Lee Greenwood, 309 S. Hamilton St., Chicago, Ill., rec. by Wm. B. Day and E. N. Gathercoal.

No. 191. William Beckman, Ph.G., Chatsworth, Ill., rec. by William Gray and William B. Day.

No. 192. Robie Rolland Weaver, Ph.G., 1615 S. Penn. St., Muncie, Ind., rec. by Clyde M. Snow and Wm. B. Day.

No. 193. Chas. W. Westenfelter, 37 E. Main St., Springfield, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 194. Chas. E. Lawson, 1117 Ewing St., Indianapolis, Ind., rec. by Francis E. Bibbins and W. C. Bartholomew.

No. 195. Frank William Graham, Ph.G., 518 N. Side Square, Carlinville, Ill., rec. by A. H. Clark and Wm. B. Day.

No. 196. Miss Agnes Duvoisin, Baltimore Ave. and Maple Terrace, Clifton Heights, Pa., rec. by Charles H. LaWall and M. R. LaWall.

No. 197. Hugh C. Russell, 3428 Clybourn St., Milwaukee, Wis., rec. by C. W. Johnson and A. W. Linton.

No. 198. Edward Sehl, 117 W. High St., New Philadelphia, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 199. William P. Jenkins, 5th and Ludlow Sts., Dayton, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 200. Horace John Megin, U. S. Naval Magazine, Portsmouth, Va., rec. by Wm. B. Day and J. F. Rupert.

No. 201. William Everett Smith, 307 Main St., Moscow, Idaho, rec. by Wm. B. Day and J. W. England.

J. W. ENGLAND,
Secretary of the Council.

415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 24.

PHILADELPHIA, Pa., May 22, 1916.

To the Members of the Council:

Motion No. 48 (*Election of Members; Applications Nos.* 186 *to* 201 *inclusive*) has received a majority of affirmative votes.

Motion No. 49 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 202. Emil Starz, 21 W. 6th Ave., Helena, Mont., rec. by Chas. E. Mollet and Alex. F. Peterson.

No. 203. Frank Barabini, 97 Lexington Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 204. Abraham Blank, 432 E. 79th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 205. Benjamin Bratter, 1204 Evergreen Ave., Bronx, New York, N. Y., rec. by Gustave Horstmann and Jacob Diner.

No. 206. Max J. Breitenbach, 53 Warren St., New York, N. Y., rec. by Frank L. McCartney and Geo. Rieffein.

No. 207. Philip J. Breivogel, 2134 LaFontaine Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 208. Henry S. Cohen, 2142 Hughes Ave., New York, N. Y., rec. by G. Horstman and Jacob Diner.

No. 209. Morris Cohen, 2400 Seventh Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 210. Frank S. Connelly, 7 Delta Place, Goshen, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 211. Reginald Edgar Dyer, 81 Fulton St., New York, N. Y., rec. by Romain Pierson and Frank L. McCartney.

No. 212. John B. Fiorillo, 304 W. 149th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 213. Edward Fox, 329 E. 152nd St., New York, N. Y., rec. by Gustave Horstmann and Jacob Diner.

No. 214. Harold Friedman, 435 Palisade Ave., Jersey City, N. J., rec. by G. Horstmann and Jacob Diner.

No. 215. Solomon Friedman, 62 Rivington St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 216. George Peter Gakidis, Ph.G., 779 Tremont St., Boston, Mass., rec. by Theodore J. Bradley and John G. Godding.

No. 217. Henry N. Garfield, 1055 Bergen St., Brooklyn, N. Y., rec. by Turner Fee Currens and Frank L. McCartney.

No. 218. Isidor Ganbarg, 21 E. 105th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 219. Nathan Glazer, 1246 Second Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 220. Charles P. Grimm, 671 Courtland Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 221. Oscar Gudis, 94 Rivington St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 222. Theophile C. Kaminski, 214 33rd St., Brooklyn, N. Y., rec. by Gustave Horstmann and Jacob Diner.

No. 223. Maurice Klein, 1310 Brook Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 224. Louis Krasnow, 167 Havemeyer St., Brooklyn, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 225. Otto H. Kuhn, 1071 Franklin Ave., New York, N. Y., rec. by Gustave Horstmann and Jacob Diner.

No. 226. Edward E. LoPorto, 503 W. 52nd St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 227. Truman A. Linck, 904 Grand Ave., Kansas City, Mo., rec. by H. V. Arny and Jeannot Hostmann.

No. 228. Samuel D. Lippin, 30 West 116th St., New York, N. Y., rec. by G. Horstmann and J. Diner.

No. 229. Charles J. McCloskey, 351 Montgomery St., Jersey City, N. J., rec. by Luke C. Hines and John C. Gallagher.

No. 230. William Morris, 319 E. 9th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 231. Harry Neretin, 1381 Franklin Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 232. Joseph John Nolen, 420 Britton Ave., Concord, S. I., N. Y., rec. by G. Horstmann and Jacob Diner.

No. 233. Armando Paganelli, 960 E. 179th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 234. Arthur Petretti, 557 Fordham Road, New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 235. David Soskin, 595 Beech Terrace, New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 236. Samuel M. Schulsinger, 2203 Belmont Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 237. Isaac K. Sellman, 4321 Third Ave., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 238. Joseph Anthony Solano, 26 S. 12th Ave., Mt. Vernon, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 239. Charles V. Sparhawk, 278 Pearl St., New York, N. Y., rec. by Frank L. McCartney and Caswell A. Mayo.

No. 240. Ernst Stauffen, 41 John St., New York, N. Y., rec. by Frank L. McCartney and Caswell A. Mayo.

No. 241. Gustave Alfred Sticht, 752 Flushing Ave., Brooklyn, N. Y., rec. by Frank L. McCartney and C. A. Mayo.

No. 242. David R. Uran, 52 West 119th St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 243. August A. Wasserscheid, 30 and 32 Platt St., New York, N. Y., rec. by Frank L. McCartney and Caswell A. Mayo.

No. 244. William Weinar, 122 S. First St., Mt. Vernon, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 245. Franklin B. Yates, 159 Leonard St., New York, N. Y., rec. by Frank L. McCartney and Geo. T. Reiffein.

No. 246. Isidore Zeiger, 22 E. 112th St., Care of Tannenbaum, New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 247. Edward F. Chronik, 819 E. 163rd St., New York, N. Y., rec. by G. Horstmann and Jacob Diner.

No. 248. Norma C. Hawley, Butterworth Hospital, Grand Rapids, Mich., rec. by Anna G. Bagley and Bertha Ott.

No. 249. Howard Jonathan Koch, 1020 Turner St., Allentown, Pa., rec. by Charles H. LaWall and M. R. LaWall.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

CONSERVATION OF WASTE PAPER.

Everyone will have discovered that paper is advancing in price day by day. Dean Albert W. Smith, Sibley College, Cornell University, says that when paper scarcity is threatened the following facts should be considered:

Waste paper may be burned or turned over to the ragman; but there is a very important economic difference between these two methods of disposal.

The paper that the ragman receives eventually reaches the paper mills and is worked over; thus waste may become available again as new stock in a very short time—a few weeks or even less. It is true that paper with printer's ink on it cannot be worked over into new white stock; but it can be used to produce wrapping paper, and this releases an equivalent amount of pulp for production of white stock.

If the paper is burned the carbon that it contains combines with atmospheric oxygen to form gaseous carbon dioxide which is diffused through the atmosphere. This carbon, or its equivalent, can only become available again for paper through the slow process of plant growth, requiring many months or perhaps years.

Briefly, the process is as follows: Energy in the form of light and heat from the sun comes to the growing parts of plants, which are thereby enabled to separate the carbon and oxygen of carbon dioxide of the atmosphere; the oxygen is turned back into the air, and the carbon is stored in the plant fibre together with oxygen and hydrogen from the water supplied for irrigation. The plant fibre is cellulose ($C_6H_{10}O_5$), and paper consists of very fine fibres of cellulose interwoven and formed into a thin web. The whole object of the pulp and paper making process is to change raw plant fibre into paper.

In the case of linen paper the source is the fibre of flax, which is first made into linen cloth; when this through use becomes rags it is made into paper. Flax matures in one season, but the interval between the maturing of flax and the production of linen paper may be several years. Hence all linen paper should be saved and started toward the paper mill.

The same reasoning applies to paper made from cotton fibre.

The paper made from wood-pulp has its source usually in the trunks and branches of spruce trees, and several years of growth are required to prepare a tree for the pulp mill; hence no wood-pulp paper should be burned.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

THE PHARMACIST IN GOVERNMENT SERVICE.

Germany places its medical supply department in the hands of trained pharmacists; Japan followed this example and it is said that the pharmacy department is one of the most efficient of its military organization.

Pharmacists who have been in position to know something of the supply department for the army in this country are aware that there is often an evidence of either indifference or ignorance in purchasing drugs and related supplies. The same occasionally obtains in the purchase of supplies for state institutions.

The point is presented to direct attention and offer argument for placing this duty in the hands of qualified pharmacists. The uninformed officials or army medical men are perhaps not intentionally indifferent, but their knowledge of drug prices is meagre and therefore they cannot be observant. This leads to graft which could be prevented by the suggested method. Pharmacists should have supervision over sanitary regulations and operations and be entrusted with the handling of medical supplies.

It may not be generally known that the pharmacists of the Public Health Service have had *no* increase in pay for about fourteen years. March 4, 1913, the President approved the revised regulations of the Public Health Service, which provided a new scale of pay for the pharmacists with increased compensation. Congress, however, in the same year, in an Act for appropriations, provided that no part of any money appropriated shall be available for the payment of personal services at a rate of compensation in excess of that paid for the same or similar services during the preceding fiscal year. Hence the action of Congress prevented the paying of the increased compensation.

An Act of August 14, 1912, increased the duties of various officials, etc., and this made it possible to pay advanced salaries under the interpretation that increased pay followed the added duties. The pharmacists in the Public Health Service also were given more and additional work and under similar interpretation should be entitled to increased pay. At this time, when there is to be reorganization, these matters should be brought forward so that these pharmacists may receive rightful consideration.

DERELICTS IN THE DRUG BUSINESS.

One of the most serious problems that confronts associations and individual druggists is, what to do with those who pursue methods that discredit the craft. To be more specific, there are men in the drug business who substitute and adulterate, conduct saloons instead of drug stores, sell articles and drugs that are prohibited by law. They take the chances, but often continue their nefarious business for years without being caught. It cannot be denied that such conditions are hurtful, but how can they be corrected?

In every large city, and even in other localities, there are dealers in prohibited drugs and articles. Personally, some of them are "fine fellows," their competitors dislike to report them, but is this right? They are oblivious to moral or professional claims that others, who detest such practices, have on them. In the current issue of one of the drug journals there are a number of views showing the destruction of saloons, in fact, drug stores, in name. In the daily papers may be seen, from time to time, pictures of druggists apprehended for selling narcotics. The medical profession is not free from such undesirables, but that is poor consolation.

The United States Supreme Court has held

Section 8 of the Harrison Law unconstitutional, which means that many cases now in court will be *nolle prossed* and, until new prosecutions can be perfected, will increase the illegitimate sales of narcotics.

States should see the necessity for effective pharmacy laws to exclude the unfit and eliminate the unworthy. The revoking of license should not only be a penalty of the law, but the one of invariable application, when intentional violations of laws are proven.

THE UNITED STATES SUPREME COURT RULING ON SECTION EIGHT OF HARRISON LAW.

It has been pointed out before that, in constructing the Harrison Law, the tax power of the federal government was distorted to create an extraordinary police function for which there is no direct authority in the constitution, and this created police power includes personal and individual regulation which is beyond scope of law. According to the Supreme Court's interpretation of the Harrison Law, possession of the proscribed drugs is not a crime nor *prima facie* evidence of a crime, except such possession be shown to be for the purpose of sale.

All reforms cannot be accomplished by law, and while the decision is disappointing because thereby the Harrison Law is for the time seriously crippled, means will be devised whereby the same end will be reached legally. Though the full text of the majority opinion by Justice Holmes is not to hand at this writing, the published synopsis indicates clearly that Congress has power to remedy the defect which the Supreme Court has discovered in the Harrison Act.

Justices Hughes and Pitney dissented from the majority decision.

A NEW CHEMICAL ANTIDOTE FOR MERCURIC CHLORIDE POISONING.

E. M. Harvey, druggist of Eugene, Ore., in coöperation with Dr. J. G. Hurst of the same city, has worked out a new chemical antidote for "bichloride" poisoning, which they contend is also physiologically active. Successful tests have been made in the laboratory and also in actual cases of poisoning.

The report is made in the Pacific Drug Review; the constituents and proportions of the antidote are, calcium oxide, 90; sublimed sulphur, 250, and water to make 4000. The lime is slaked and the sulphur is mixed with the magma; 4000 Cc. of hot water are added, and the mixture boiled, under constant stirring, for half an hour. When cold, the mixture is filtered through absorbent cotton, bottled and tightly corked.

In the chemical reaction calcium bisulphide and calcium thiosulphate are formed and these, reacting with mercuric chloride, liberate mercuric sulphide, and the other products of the reaction finally are calcium thiosulphate and hydrochloric acid; these in the quantities employed are harmless.

The directions for administration are stated as follows: two fluidrachms of the antidote are given, diluted in a glass of water, followed by an enema containing 30 minims of the antidote, and this is to be retained as long as possible. After this, during twelve hours following, 4 drops are diluted with a glass of water and such dose repeated every hour.

Theoretically the proposition looks all right and, having been successfully employed in actual poisoning cases, evidently proves the practical value.

CORNELIUS HANBURY.

Notice was not made in last month's issue of the death of Cornelius Hanbury, and, although rather late, a record should appear in this publication.

Mr. Hanbury was born November 29, 1827, and passed away April 11, aged eighty-nine years. The firm of which he was a member celebrated its bicentenary last December. Mr. Hanbury served a five-year apprenticeship, passing the examination of the College of Surgeons in 1849 and the next year that of the Apothecaries' Company. In 1849, he began work at the pharmacy of his uncle and father at Plough Court. Here he became closely associated with his cousin, Daniel Hanbury, and with him, in due course of time, succeeded to the business of Allen and Hanburys. Mr. Hanbury was for a time treasurer and also member of the Council of the British Pharmaceutical Society. A sketch of the life of this distinguished pharmacist cannot be attempted. Suffice it to say, the company of which he was at one time sole owner has large branches in practically every country.

PROFESSOR EMILE CLEMENT JUNGFLEISCH.

Professor Emile Clement Jungfleisch, of the Paris School of Pharmacy, died April 24, aged seventy-seven years, at his residence in Paris, France. At the age of twenty he became a member of the Paris Society of Chemistry; in 1863 house-pharmacist at La Pitié; in 1865, he rendered valuable service during the cholera epidemic; in 1869 he became preparator to Berthelot and from thence on succeeded to positions made vacant by the latter. In 1872 Professor Jungfleisch was awarded the Jecker prize of the Academy of Sciences for his work on benzene chloride and the transformation of varieties of tartaric acid. Many honors came to him during his active life, which brought forth numerous contributions to pharmacy and chemistry. While distinguished as a chemist and member of the Academy of Medicine, he was at one time president of the Paris Society of Pharmacy and an honored member thereof, also member of the Revision Committee of the Codex since 1884.

BARTRAM'S DESCENDANTS TO RESTORE FAMOUS PHILADELPHIA GARDEN.

Lineal descendants of John Bartram and members of the association named for the founder of the first botanical garden in America gathered, June 3, on these grounds and voiced their determination to restore the garden to its original state of one hundred and eighty-six years ago.

Tentative plans for the restoration have been considered, and in the near future more active steps will be taken. Several distinguished speakers participated in this, the twenty-second annual meeting, among them our fellow member, Dr. Adolph W. Miller.

There is much remaining in the garden and the house that links the past with the present, and with sufficient means it will be possible to restore original conditions, as far as these are desirable.

NEW YORK TRADE PRESS TAKES ACTION AGAINST ALLEGED PRICE COMBINATION OF PHOTO-ENGRAVERS.

The New York Trade Press Association is leading a fight against arbitrary and what is believed to be illegal action on the part of the engraving concerns of the city. These concerns have banded themselves together, under the name of the Photo-Engravers' Board of Trade, and recently notified all the publishers in New York City of an advance in the prices for photo-engraving which runs all the way from 20 to 200 percent.

It is noteworthy that the photo-engravers succeeded in putting into effect a similar scale in Chicago *and are planning to do likewise in 34 other cities,* without opposition from the publishers. In New York, too, it was assumed, at first, that this high-handed action could get through unchallenged. The trade publishers, however, looked into the matter and reached the conclusion that the action of the photo-engravers was contrary to law; that not only does it violate the Federal statute against combinations to fix prices, but that it directly contravenes a New York state law, known as the Donnelly Act, which is really more stringent than the Federal statute. The New York Trade Press Association has brought the matter to the attention of the District Attorney in New York County.

OBITUARY.

CHARLES L. HAY.

Charles LaMar Hay, of Du Bois, Pa., a prominent pharmacist of Pennsylvania, died of apoplexy in St. Mary's Church, St. Mary's, on April 23, 1916.

Mr. Hay was born at Lost Creek, Schuylkill County, Pennsylvania, August 15, 1866. He went to Du Bois in 1881, and later entered the employ of the late E. Fred Vosburg, being taken into partnership in 1888. Two years later he purchased Mr. Vosburg's interest, Mr. Vosburg having started the Corner Drug Store. In 1900 Mr. Hay purchased this store from Mr. Vosburg and in 1914 he formed the Hay Drug Company. Last June, Mr. Hay purchased a drug store in Ridgway, and in July moved to that place.

Mr. Hay was a master workman in pharmacy and for a number of years was active in the Pennsylvania Pharmaceutical Association. He became a member in 1896, in 1899 he was elected first vice-president, and in 1902 was made president.

Mr. Hay was a man of strong force of character and genial disposition.

He was a warm admirer of the American Pharmaceutical Association, believing that "the good work that this organization has accomplished can scarcely be computed; sufficient to say that whatever advancement pharmaceutical science has made in this country has been largely due to its fostering care." He became a member in 1898.

Mr. Hay was especially earnest in his opinions upon the necessity of changing our patent and trade mark laws. In his address as president of the Pennsylvania Pharmaceutical Association, in 1903, he said that education is our remedy—"Educate our people as well as our legislators to a thorough comprehension of the nature of these laws. . . .

CHARLES L. HAY

"Our country—big and generous in everything—permits its generosity to take strange moods. So lavish are we that we give away an empire worth a dozen king's ransoms to a transcontinental railway and then in the next spasm grant a foreigner a monopoly on a medicinal preparation which his own country—more watchful of the welfare of its invalid citizens—refuses to protect; and this freak of generosity of ours enables the foreigner to demand and receive four, yes, five and six, times what the identical product sells for in the land of its birth."

Thirteen years have flown by since Mr. Hay uttered his earnest protest and the laws of product-patents have not been changed; but they may yet be by reason of the exigencies caused by the European War.

Mr. Hay is survived by his wife and two sons, his mother, five brothers, and two sisters. J. W. E.

JOSEPH D. FRANZONI.

Joseph Dunbar Franzoni, seventy-five years old, a prominent pharmacist of the national capital, died at his late home, 608 Massachusetts Avenue, N. W., Washington, D. C., on April 22, 1916, of Bright's disease. He was a life-long resident of Washington and a prominent figure in local pharmaceutical circles. He was connected with the firm of Z. D. Gilman, 627 Pennsylvania Avenue, for fifty-three years, and was a member of the firm for half a century. He took an active interest in civic affairs, being a member of the Board of Trade and Chamber of Commerce.

He joined the American Pharmaceutical Association in 1900. He is survived by four sons, two daughters, and a brother, all of Washington, D. C. J. W. E.

SOCIETIES AND COLLEGES.

The American Pharmaceutical Association will meet in Atlantic City, September 5–9. The American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy convene in Philadelphia, August 31 and September 1 and 2, participating in joint meeting with other bodies in Atlantic City during the week following. In last issue, underneath a cut showing a view in Atlantic City, the month given there was an error, and, while we presume this was recognized, we desire to emphasize the time and place so that the members will prepare for the annual event.

The Chairmen of the various sections have been busily engaged in laying out their work and soliciting papers for their programs. While, as a rule, by the time of the meeting, there are sufficient papers to occupy the time of the sessions, many are slow in responding, forgetful that this may mean loss of time and unnecessary expenditure for postage.

The Detroit meeting exemplified that it was possible to carry on association work systematically. Of necessity each member in attendance has many engagements, they would like to participate in the work, or listen to as many of the papers as possible. The success depends on coöperation in applying system and doing away with *unnecessary* remarks.

Discussions are very important. Everyone must make some sacrifice, and punctuality is essential. Associations should be conducted according to modern business methods, run by the clock, "filling the unforgiving minute with sixty seconds' worth of distance run."

Atlantic City is so generally well-known for its attractions and hotel facilities that little need be said in that respect. On page 557 of the May issue names and rates of hotels will be found. Further information can be obtained by addressing the Atlantic City Publicity Bureau.

THE NEW NATIONAL FORMULARY.

The Committee on Publication of the American Pharmaceutical Association makes the following announcement:

The National Formulary, Fourth Edition (N.F. IV), will be ready for distribution about July 1, 1916.

The prices of the book in the various bindings will be as follows: Muslin binding, plain, $2.50; buckram, plain, $2.75; buckram, interleaved, $4.00.

The purchase of the buckram binding is recommended, in preference to the muslin binding, as it is much more durable and suitable for a book of the size and weight and the constant use to which this book will be subjected; and the additional cost is but 25 cents per copy.

The book has been completely revised and enlarged. It contains formulas for 589 preparations in Part I, and in Part II definitions and tests for 188 ingredients used in the formulas, but not standardized in the U.S.P. IX. The titles of articles total 777.

The N.F. IV is a legal standard under the Federal Food and Drugs Act and various state food and drug acts and is indispensable to every practising physician and pharmacist.

The Midland Publishing Company, Columbus, Ohio, has been appointed general sales agent with the following sub-agents: The Baker-Taylor Company, New York City; The Chicago Medical Book Company, Chicago; L. S. Mathews Company, St. Louis, Mo.; The Pacific Drug Review, San Francisco and Portland.

Single copies will be forwarded postpaid on receipt of the price by any of the agents.

J. W. England,

Chairman of Committee on Publications.
Philadelphia, Pa.

JUNE AND JULY ASSOCIATION MEETINGS.

Alabama Pharmaceutical Association, at Gadsden, June 21st. President, L. L. Scarborough, Anniston; secretary, W. E. Bingham, Tuscaloosa.

California Pharmaceutical Association, at Los Angeles, June 21–23. President, J. A. Sanford, Stockton; secretary, K. B. Bowerman, San Francisco.

Colorado Pharmaceutical Association, at Estes Park, June 20–23. President, H. B. SeCheverell, Denver; secretary, Charles J. Clayton, Denver.

Florida Pharmaceutical Association, at Tampa, June 21–22. President, M. M. Taylor, Tampa; secretary, J. H. Horton, Palatka.

Georgia Pharmaceutical Association, at Atlanta, June 6–7. President, S. E. Bayne, Macon; secretary, T. A. Cheatham, Macon.

Idaho Pharmaceutical Association, at Ketchum, June 19–21. President, W. F. Bee, Boise; secretary, D. S. Whitehead, Boise.

Illinois Pharmaceutical Association, at Springfield, June 6–8. President, Julius Riemenschneider, Chicago; secretary, W. B. Day, Chicago.

Indiana Pharmaceutical Association, at Indianapolis, June 20–22. President, Charles Genolin, Nashville; secretary, W. F. Werner, Indianapolis.

Iowa Pharmaceutical Association, at Iowa City, June 20–22. President, John Sutter, Burlington; secretary, Albert Falkenhainer, Algona.

Kentucky Pharmaceutical Association, at Olympia Springs, June 20–22. President, W. B. Tibbals, Somerset; secretary, J. W. Gayle, Frankfort.

Maine Pharmaceutical Association, at Augusta, June 28–30. President, D. T. Dougherty, Bath; secretary, M. L. Porter, Danforth.

Michigan Pharmaceutical Association, at Detroit, June 20–22. President, D. H. Jongejan, Grand Rapids; secretary, D. D. Allen, Fremont.

Mississippi Pharmaceutical Association, at Meridian, June 13–14. President, H. M. Faser, Oxford; secretary, Miss Flora Scarborough, Laurel.

Missouri Pharmaceutical Association, at Excelsior Springs, June 13–16. President, J. E. Koppenbrink, Higginsville; secretary, H. M. Whelpley, St. Louis.

Nebraska Pharmaceutical Association, at

Hastings, June 15–16. President, K. L. Kreisinger, Fremont; secretary, J. G. McBride, University Place.

New Hampshire Pharmaceutical Association, at Newcastle, June 27–28. President, B. T. Porter, Ashland; secretary, Eugene Sullivan, Concord.

New Jersey Pharmaceutical Association, at Long Branch, June 20–23. President, C. J. McCloskey, Jersey City; secretary, Frank C. Stutzlen, Elizabeth.

New York Pharmaceutical Association, at Richfield Springs, third week in June. President, A. S. Wardle, Hudson; secretary, E. S. Dawson, Syracuse.

North Carolina Pharmaceutical Association, at Wrightsville, June 20–22. President, E. L. Tarkenton, Wilson; secretary, J. G. Beard, Chapel Hill.

Pennsylvania Pharmaceutical Association, at Reading, June 20–22. President, T. Campbell, Philadelphia; secretary, D. J. Reese, Philadelphia.

Utah Pharmaceutical Association, at Logan, June 27–28. President, R. S. McAllister, Logu; secretary, C. VanDyke, Salt Lake City.

Vermont Pharmaceutical Association, at St. Albans, June 26–28. President, C. H. Skinner, Windsor; secretary, W. E. Terrill, Montpelier.

West Virginia Pharmaceutical Association, at Webster Springs, second week in June. President, B. E. Downs, Welch; secretary, C. H. Rogers, Morgantown.

Washington State Pharmaceutical Association, on board the Steamship Governor, during three-day cruise on Puget Sound, June 19–22. President, C. W. Johnson, Seattle; secretary, A. W. Linton, Seattle.

Flavoring Extract Manufacturers' Association, at Atlantic City, June 28–30.

American Institute of Chemical Engineers, eighth semi-annual meeting, Cleveland, Ohio, June 14–17. President, George D. Rosengarten, Philadelphia; secretary, John C. Olsen, Brooklyn, N. Y.

Montana Pharmaceutical Association, at Missoula, July 20–23. President, J. W. Corwin, Arch City; secretary, J. A. Riedel, Boulder.

Ohio Pharmaceutical Association, at Cedar Point, July 11–14. President, J. F. Gallaher, Dayton; secretary, T. D. Wetterstroem, Cincinnati.

Tennessee Pharmaceutical Association, at Chattanooga, July 11–13. President, T. A. Robinson, Memphis; secretary, T. J. Shannon, Sharon.

Virginia Pharmaceutical Association at Staunton, July 12–14. President, J. F. Bauer, Richmond; secretary, E. L. Brandis, Richmond. Through misinformation time and place were wrongly given in last month's issue. We thank secretary Brandis for the correction.

Wisconsin Pharmaceutical Association, at Wausau, July 18–21. President, B. J. Kremer, Fond du Lac; secretary, E. A. Raeuber, Milwaukee.

ARKANSAS ASSOCIATION OF PHARMACISTS.

Arkansas pharmacists convened in annual session at Little Rock, May 9. One of the interesting features of the program was a symposium on the various National Associations. Messrs. W. L. Dewoody, J. F. Dowdy and O. Halliburton were elected to Life Membership. The new officers are: President, W. R. Appleton, Warren; first vice-president, August Clarke, Nashville; second vice-president, W. C. Hogan, Atkins; secretary-treasurer, Miss Mary A. Fein, Little Rock.

Chairman of executive committee, Frank Schachleiter.

Nominations for State Board Membership, Roy Chamberlain, Malvern; J. E. Paris, Paragould; August Clarke, Nashville.

OKLAHOMA PHARMACEUTICAL ASSOCIATION.

The Oklahoma Pharmaceutical Association convened at Sulphur, May 16. Entertainment features were excluded from the first and second days' sessions and concentrated interest in the many valuable papers. Dean Charles Stocking, of the Oklahoma Pharmacy School, delivered an address. Oklahoma City was selected for the next meeting and the days fixed for the convention are February 13, 14 and 15. The new officers are: President, R. L. Sanford, Marshall; vice-president, Thos. Roach, Oklahoma City; secretary-treasurer, A. W. Woodmancy, Oklahoma City.

TEXAS PHARMACEUTICAL ASSOCIATION.

Secretary W. H. Cousins writes that the Fort Worth meeting of Texas Pharmaceutical Association was a good one. The business sessions were fairly well attended and the entertainment has never been surpassed. A feature of the meeting was an able address by Hugh Craig of Chicago, editor of the journal of the National Association of Retail Druggists. About sixty new members were added and eleven applications were received for the American Pharmaceutical Association.

The new officers are: Z. E. Marvin of Dallas, president; C. E. Craycroft of Sherman, first vice-president; Tom J. Snell of Cooper, second vice-president; Mrs. Emilie B. Dwyer of Houston, third vice-president; Frank Pierce of Ballinger, fourth vice-president; W. H. Cousins of Dallas, secretary-treasurer; J. W. Graham of Austin, home secretary; W. C. Burns, San Antonio, local secretary, and Steve Kelton of Fort Worth, historian.

Officers of the ladies' auxiliary are: Mrs. W. H. Wentland, Manor, president; Mrs. J. W. Cleveland, Houston, first vice-president; Mrs. George Reynolds, Dallas, second vice-president; Mrs. C. C. Martin, Fort Worth, secretary; Mrs. Walter Adams, Forney, treasurer.

San Antonio was selected as the next meeting place.

LOUISIANA PHARMACEUTICAL ASSOCIATION.

The thirty-fourth annual meeting of the Louisiana Pharmaceutical Association was held at Baton Rouge, May 9.

The most important action of the association was the appointment of a special committee to draft a bill to extend the authority of the board of pharmacy.

The following officers were elected to serve during the ensuing year:

President, Charles A. McDonald, of Port Allen; vice-presidents, E. H. Daste, of New Orleans, and J. R. Taylor, of New Iberia; treasurer, George S. Brown, of New Orleans; secretary, George W. McDuff, of New Orleans; corresponding secretary, J. E. Guess, of Kentwood.

MEMBERS OF DEUTSCHER APOTHEKER VEREIN NEW YORK WILL ATTEND ATLANTIC CITY MEETING.

Mr. Hugo Kantrowitz conveys the information that many members of the Deutscher Apotheker Verein will attend the Atlantic City meeting of the American Pharmaceutical Association, September 5–9. Aside from the general purpose of attending the meeting, a motive that prompted the arrangement was to pay respects to their fellow-member, Dr. William C. Alpers, President of the American Pharmaceutical Association.

TENTH ANNIVERSARY OF AMERICAN DRUGGISTS' FIRE INSURANCE COMPANY.

The American Druggists' Fire Insurance Company is so closely related that it may well be named one of the allied drug interests, being organized exclusively by members of one or the other, or all of the national associations. The occasion of its tenth birthday was celebrated by bringing together those who represent the company with the officials and the gathering had the complexion of a pharmaceutical meeting, nearly all being active in State and National Associations. Aside from the celebration, the convention was for instruction; these sessions were full of interest, every one in attendance contributing a paper. The entertainment features were left for the last day of the convention, terminating with a banquet, at which time Dr. W. C. Anderson presided as toastmaster and responses were made by President Alpers of the American Pharmaceutical Association, President Stout of the National Association of Retail Druggists and Messrs. T. H. Potts, Hugh Craig, Chas. H. Huhn, L. C. Heinritz, Professor J. U. Lloyd and E. G. Eberle.

During the evening Mr. F. H. Freericks was presented with a valuable watch and chain, and with it went the appreciation and best wishes of his associates, expressed in thoughtful and beautiful words by Dr. J. H. Beal.

ST. LOUIS COLLEGE OF PHARMACY.

Commencement exercises of the St. Louis College of Pharmacy were held at Sheldon Memorial Hall, May 24; the address for the faculty was made by Professor George Dock of Washington University Medical School. The degrees were conferred by President Thos. A. Buckland and the prizes and honors by Dr. W. D. Aufderheide and Prof. Leo Suppan. The recommendation for membership in the American Pharmaceutical Association was awarded to Henry George Becker of Pekin, Ill. Twenty-eight candidates received the degree of graduate in pharmacy and twelve the bachelor of pharmacy degree.

The annual banquet was held at Jefferson Hotel, May 23, Dr. H. M. Whelpley, presiding as toastmaster.

BAYLOR UNIVERSITY COLLEGE OF PHARMACY.

Commencement exercises of Baylor University College of Pharmacy were held May 31. The American Pharmaceutical Association Membership was awarded to Zeb. W. Rike, of Farmersville, Texas.

LOUISVILLE COLLEGE OF PHARMACY.

The Louisville College of Pharmacy conferred the degree of graduate in pharmacy on sixteen students at their forty-fifth annual commencement. Beginning with next session the college will add a three-year course for the degree of pharmaceutical chemist.

MASSACHUSETTS COLLEGE OF PHARMACY.

The commencement exercises of Massachusetts College of Pharmacy were held May 18, at Convention Hall, Boston. The honorary degree of Doctor of Pharmacy was conferred on Henry A. Estabrook of Fitchburg, Mass., in recognition of his distinguished standing as pharmacist. Dr. Estabrook also delivered the address to the graduates; President C. Herbert Packard conferred the degrees on thirty-eight candidates, seven of whom received the degree of pharmaceutical chemist, the others that of graduate in pharmacy. Five of the candidates were awarded membership in the American Pharmaceutical Association, as prizes for proficiency in various branches; they are: Emile J. Ouellet, of Adams, Mass., Annabel Carter, of Waltham, Mass., Percy M. McCormick, of New Castle, New Brunswick, Ralph C. Root, Brattleboro, Vt., and Frank G. Braconier, of Campello, Mass.

PHARMACY DEPARTMENT, MEDICO-CHIRURGICAL COLLEGE.

On the evening of May 3, the Alumni Association of the Pharmacy Department, Medico-Chi, tendered its annual reception to the Senior Pharmacy Class at the Hotel Adelphia, President Fischelis acting as toastmaster. Edward J. Cattell, Statistician of the City of Philadelphia, gave an eloquent address on "Getting the Most Out of Life," and no doubt his words will be long remembered by all who were fortunate enough to be in attendance. Among the other speakers were Eugene G. Eberle, editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION; Dean J. W. Sturmer; Dr. A. C. Morgan, of the Medical Alumni Association; Dr. James A. Brady, of the Dental Alumni Association; Dr. John R. Minehart, Dean of the Department of Pharmacy of Temple University and a graduate of the Department of Pharmacy of Medico-Chi; Dr. W. W. McNeary, President of the General Alumni Association; Prof. F. E. Stewart, and representatives of the Senior Class.

The commencement exercises of the Pharmacy Department were held at the Academy of Music, June 9, the doctorate oration being delivered by Hon. William W. Porter, formerly Justice of the Superior Court of Pennsylvania. A general alumni banquet and reception was held June 8th. Dr. H. V. Arny of the New York College of Pharmacy was a guest of honor and one of the speakers.

Membership prizes in the American Pharmaceutical Association were awarded to Albert L. Ikan, Charles A. Greenstone and A. M. Aliberti.

Announcement was made that the department of pharmacy would become the Department of Pharmacy of the University of Pennsylvania.

NEW YORK COLLEGE OF PHARMACY.

The eighty-sixth annual commencement exercises of the College of Pharmacy of the City of New York, Columbia University, were held in Carnegie Hall on the evening of May 11th.

The trustees of the New York College of Pharmacy contemplate a drug garden and have secured the use of a plot of ground in the New York Botanical Gardens and are now securing funds to prepare the ground for cultivation.

The members of the special committee in charge of collecting the fund needed to start operations in this garden are Irving McKesson, Dr. Henry Hurd Rusby, dean of the college, and Max J. Breitenbach. This committee has already obtained subscriptions for $4000, and hopes to gather $6000 more within the near future.

It is estimated that it will cost at least $3000 to put the loaned acre into shape for the successful cultivation of drug plants. The expense of operating the garden after it has been prepared is figured at $600 a year. The committee hopes eventually, however, to secure an endowment fund of about $20,000, which, at 6 percent interest, will furnish a revenue of $1200 a year, and to use the greater part of, if not all of, this revenue in a gradual expansion of activities.

PHILADELPHIA COLLEGE OF PHARMACY.

Commencement exercises of the Philadelphia College of Pharmacy began Sunday, June 4, with baccalaureate services at the Church of St. Luke and the Epiphany; Monday the faculty banqueted the graduating class; Tuesday was Alumni Day. This is the fifty-second anniversary of the Alumni Association and the fiftieth year since Professor Joseph P. Remington, the dean, graduated from this school, which is sending out its ninety-fifth class of graduates. The annual meeting was held during the morning while the afternoon was given over to class-day exercises and the day concluded with a banquet at Hotel Adelphia, where assembled nearly 300 graduates of the institution.

The speakers on the program were Dr. Ross V. Patterson, dean of the Jefferson Medical College, President William H. Ibach, Jr., of the graduating class and President Warren H. Poley, of the Alumni Association; impromptu addresses and remarks were made by representatives of the classes of the years ending in "1" and "6," and others called upon. The oldest graduate in attendance was Joseph L. Lemberger of Lebanon, Pa., of '54, who spoke words of admonition and cheer. Prof. E. N. Howell of Chapel Hill, N. C., was present and spoke of his attachment for the school. Numerous letters and telegrams were read and the evening passed quickly and pleasantly.

The graduating exercises were held at the Academy of Music, June 7, the address being delivered by Rev. Dr. John G. Wilson. President Howard B. French presided and conferred the degrees on 154 graduates. Certificates of Proficiency in Chemistry were given to nine; Food and Drug Course, one; Bacteriology, twenty-one; Analysis of Agricultural Products, one; Pharmaceutical Chemists, eleven, and the remaining were given the degree of Doctor in Pharmacy.

Service to humanity as the graduates' mission in life was emphasized by the Rev. Dr. John G. Wilson in his address to the class after the degrees had been presented. He appealed to the graduates to be citizens first and business men afterward.

Of the eight young women graduates, one, Miss Florence McGarrity, is secretary of the class, and several were prize winners. The girls in the class were Miss Ada M. Bernstein, Miss Sadie Swyers, Miss Florence McGarrity, of Pennsylvania; Miss Louisa L. Escanaverino, Miss Marie D. Escanaverino, of Cuba; Miss Agatha Karnauskas, of New York; Miss Elizabeth M. Willard and Miss Maud Sollenberger, of New Jersey.

The American Pharmaceutical Association Membership prize was awarded to William Alexander Wallace.

JERSEY CITY COLLEGE OF PHARMACY.

The students of the Department of Pharmacy and the Department of Dentistry of the College of Jersey City held a reunion and a dinner at Carell's Café on Friday evening, June 2, 1916. The students have formed a Chemical Club in honor of Dr. Otto Raubenheimer, Professor of Pharmacy and Chemistry at the College. This club has the following objects: To increase the interest in chemistry, to help those students who are back in their work, to hold discussions, to provide special lectures, to visit chemical works, and to promote good fellowship.

The speakers of the evening were: Professors Raubenheimer, Kussy, Throne and Gutman, who are honorary members of the Chemical Club. The toastmaster of the evening was Harold V. Purdy of White Plains, N. Y. The Chairman of the Arrangement Committee, Harry H. Hermann, deserves credit for this very enjoyable affair. A unique feature was that each speaker had to present something pertaining to chemistry, thus making the affair a real "chemical dinner." Over 50 students were present and the banquet was a great success.

The officers of the Chemical Club are: President, Samuel Mintz; Vice-president, Leonard S. Morvay; Secretary, Joseph Bleich; Treasurer, Tillie Gardner; Laboratory Director, Samuel Brochin.

PHARMACY DEPARTMENT, TEMPLE UNIVERSITY.

The Commencement Exercises of the Pharmacy Department of Temple University were held at the American Academy of Music, June 10. Thirty-two candidates received the degree of Graduate in Pharmacy, three that of Pharmaceutical Chemist and six the degree of Doctor of Pharmacy. Ex-President of the United States, William Howard Taft, delivered the address, and his subject was largely concerned with the duties of citizenship.

THE PHARMACIST AND THE LAW.

FIRE INSURANCE RATING LAWS.

PHARMACISTS URGED TO WATCH INSURANCE RATING LEGISLATION—UNDESIRABLE BILLS STIFLE COMPETITION.

BY FRANK H. FREERICKS.

The suit of the American Druggists' Fire Insurance Company against the Commonwealth of Pennsylvania and its Insurance Commissioner forcibly brings to the public attention a legislative activity of rather recent origin. Curiously enough, this legislation is designed by its early supporters and advocates to stifle all competition among legitimate and substantial fire insurance companies, and yet it has received a limited measure of public support, doubtless due to the complexities of the fire insurance business and to the lack of its real understanding by the public, and even by many public officials. . . .

The fundamental error found in all fire insurance rating legislation is that those who would truly serve the public by advocating it do not understand that single insurance companies cannot afford the expense of making their own rates. As a consequence, every rating law now existing provides that insurance companies may make their own rates, when as a matter of fact such is a practical impossibility, and, while the understanding prevails that competitive conditions are preserved, quite the contrary is true, and all of the insurance companies are forced to adopt the rates of the Underwriter Boards and Rating Bureaus, which are controlled by the large board companies. It is only where the law provides, in addition, that insurance companies may file uniform reduction in bureau rates that competitive conditions are preserved, however, without any real influence to reduce rates of so-called board companies. The feature which would tend to preserve competitive conditions is the one to find within the last few years special attention, and in order to be sure that there can be no competition at all the Pennsylvania law and other similar laws provide that insurance companies must abide by the rules and regulations which the Underwriter Boards and Rating Bureaus may make. Of course, the first rule and regulation which such Underwriter Boards and Rating Bureaus have adopted is that no company having their service, or seeking to secure their service, may make any reductions in rates as fixed by them.

The Pennsylvania Insurance Rating Law has placed every property owner in that state at the mercy of the Underwriter Boards which there exist. Not only are all of the reliable capital stock companies forced under it to charge the rates as fixed by said Underwriter Boards, but in order to make sure that nothing shall hinder the organized insurance interests in that respect, the law actually in specific terms permits agreements among insurance companies, so that, while heretofore in case of wrongful combination and exorbitant rates they might have been charged with conspiracy, the law has taken away even this last protection of the public welfare. It is not possible to conceive of legislation apt to be of greater harm to the public interests, and yet it has been secured for the ostensible purpose of serving the public welfare. It is to be hoped that this sham will be torn from the legislation when it finds its hearing in the suit now pending, and then, no doubt, further efforts along that line will have been successfully checked. Meanwhile it will be quite important for the business interests of the country to watch the insurance rating legislation which may be proposed in their respective states. They may understand fully that such legislation, even of the best kind, will never result in reducing premium charges, but the greatest attention should be given to the feature which indirectly means to stifle all competition. Any fire insurance rating law which does not provide that Rating Bureaus or Underwriting Boards shall make no rules and regulations to prevent uniform reduction in rates by the separate companies having their service is inherently bad, and inevitably results in stifling all competition among reliable insurance companies.

COCA-COLA CASE REMANDED TO LOWER COURT FOR ACTION.

United States Supreme Court, by Justice Hughes, reversed the lower court decision as to misbranding and finds that the lower court erred in directing a decision instead of sending case to the jury.

The coca-cola case originated in Chattanooga, when the Government seized 40 barrels and 20 kegs of coca-cola on the ground that it was adulterated and misbranded. The court directed that the case be again tried under an interpretation as to the eligibility of evidence in connection with what is termed adulterated food. The case originally alleged misbranding in that the seized shipment was found to contain caffeine, but the Supreme Court did not hear the case on its merits and simply reversed the decision of the lower court and remanded it for further consideration on the ground that the lower court erred in directing a verdict in favor of the company instead of letting the case go to the jury. The lower court held that the caffeine was not an "added ingredient," the case being brought under the Pure Food and Drugs Act.

The following are extracts from the decision:

We are not now dealing with the question whether the caffeine did, or might, render the article in question injurious; that is a separate inquiry. The fundamental contention of the claimant, as we have seen, is that a constituent of a food product having a distinctive name cannot be an "added" ingredient. In such case, the standard is said to be the food product itself which the name designates. It must be, it is urged, this "finished product" that is "adulterated." In that view, there would seem to be no escape from the conclusion that however poisonous or deleterious the introduced ingredient might be, and however injurious its effect, if it be made a constituent of a product having its own distinctive name it is not within the provision. If this were so, the statute would be reduced to an absurdity. Manufacturers would be free, for example, to put arsenic or strychnine or other poisonous or deleterious ingredients with an unquestioned injurious effect into compound articles of food, provided the compound were made according to formula and sold under some fanciful name which would be distinctive. . . .

In the present case we are of opinion that it could not be said as matter of law that the name was not primarily descriptive of a compound with coca and cola ingredients, as charged. Nor is there basis for the conclusion that the designation had attained a secondary meaning as the name of a compound from which either coca or cola ingredients were known to be absent; the claimant has always insisted, and now insists, that its product contains both. But if the name was found to be descriptive, as charged, there was clearly a conflict of evidence with respect to the presence of any coca ingredient. We conclude that the court erred in directing a verdict on the second count.

The judgment is reversed and the cause is remanded for further proceedings in conformity with this opinion.

UNIFORM PRICE MEASURES.

Hearings have been given by Committee on Interstate Commerce of the House to representatives of the drug trade on the Stephens-Ashurst resale price maintenance bill. There still is much uncertainty regarding final result, notwithstanding that the United States Chamber of Commerce and the commercial bodies affiliated with that organization have voted with great unanimity in favor of legislation based upon the idea of the maintenance of resale prices.

Senator W. E. Borah, of Idaho, has added a provision to the Stephens-Ashurst measure providing that the Federal Trade Commission of its own initiative may, or upon a petition in writing by a citizen filed with such commission shall, fix and establish a fair and reasonable price at which any article coming under the terms of this act shall be sold, and shall for that purpose have access to all records, books, papers, accounts, secret processes and formulas of the proprietor, manufacturer or producer of such article which said commission shall deem necessary in order to enable it to fix and establish such price; that a price once fixed and established shall not be raised or increased without authority of the commission so to do; that any one increasing the price over that fixed by the commission shall be punished by a fine of not more than $1000 or imprisonment not less than six months, or by both such fine and imprisonment.

APPLICATION FOR REGISTRATION UNDER HARRISON LAW.

Every person, firm or corporation making application for registration must, at the time of applying for such registration, prepare in duplicate an inventory of all narcotic drugs and preparations (other than those exempted under the provisions of section 6 of the act, as defined in T. D. 2309) on hand at the date of application for registration. Where, however, a registered person, at some fixed date annually, takes a stock inventory, either at the close of the business fiscal year or of the calendar year, such inventory in duplicate, showing the quantity and names of the narcotic drugs and preparations on hand on the date next preceding the date of application for registration, may be filed in lieu of the annual inventory required at time of registration. The original inventory must be kept on file with previous inventories by the maker and the duplicate forwarded to the collector of internal revenue. No special form of inventory is required, but it must clearly set forth the name and quantity of each kind of narcotic drug, preparation or remedy, and be verified by oath or affirmation executed in conformity with law. Collectors will refuse a registration number and special tax stamp to an applicant who fails to furnish annually, at or before the date of registration, a duplicate of such inventory. Narcotic drugs and preparations must at all times be segregated from the general stock of drugs and medicines, and should be kept under lock and key to prevent theft. Where losses by theft or in transit are reported, a sworn statement of the facts, a list of the lost narcotic drugs, and preparations, and, in the case of theft, evidence that the local authorities were notified, must be filed immediately with the collector.

WAR DEPARTMENT.

List of changes of station covering period ending May 31, 1916, in the cases of Sergeants First Class and Sergeants, Hospital Corps, U. S. A.

SERGEANTS FIRST CLASS.

Charles N. Shaw, from Ft. Porter, to Ft. Logan.

Hugo E. Lacher, from Ft. H. G. Wright, to Jackson Barracks.

Albert O. Miller, from Ft. Williams, to the Hawaiian Department, on the June transport.

Henry Ash, from Ft. Adams, to the Hawaiian Department, on the June transport.

Benjamin F. Tyler, from Ft. Bayard, to Ft. Sill.

Will G. Butler, from Ft. Mott, to the Southern Department, for assignment to station.

Arthur E. Brown, from Ft. Caswell, to the Southern Department, for assignment to station.

Michael J. Hogan, from Madison Barracks, to the Southern Department, for assignment.

Samuel H. Leopold, from Ft. Rosecrans, to the Southern Department, for assignment.

Edgar T. Hitch, from the Philippines Department, to Ft. Bayard.

Walter L. Phares, from the Philippines Department, to Ft. Bayard.

Joseph B. Ehrenwerth, from the Philippines Department, to Ft. Barry.

Francis Moore, from Ft. George Wright, to the Southern Department, for assignment.

George J. Shull, from Ft. Thomas, to the Letterman General Hospital.

SERGEANTS.

Joseph P. Mills, from Ft. Williams, to the Attd. Surgeons' Office, Washington, D. C.

Arthur A. White, from Ft. Ontario, to Ft. Porter.

Edgar H. Booher, from Ft. Crockett, to the Southern Department, for assignment.

Emil Ellingsen, from Ft. Myer, Va., to the Southern Department, for assignment.

Clarence K. Aikin, from Ft. Barrancas, to the Southern Department, for assignment.

Wellie L. Turner, from Ft. Moultrie, to the Southern Department, for assignment.

Knut G. Tallqvist, from Ft. Myer, to the Southern Department, for assignment.

Arthur F. Bade, from Ft. H. G. Wright, to the Southern Department, for assignment.

Adolph Gerstenzang, from Ft. Hancock, to the Southern Department, for assignment.

William J. Maney, from Ft. Totten, to the Southern Department, for assignment.

Horace J. Caterer, from Ft. Jay, to the Southern Department, for assignment.

Robert W. Leddy, from Ft. Ontario, to the Southern Department, for assignment.

Joseph M. Bistowish, from Madison Barracks, to the Southern Department, for assignment.

Richard J. Howland, from Ft. Strong, to the Southern Department, for assignment.

Harry C. Bauder, from Ft. Monroe, to the Southern Department, for assignment.

James J. Johnson, from Ft. Terry, to the Southern Department, for assignment.

Charles W. Hurley, from Ft. Hamilton, to the Southern Department, for assignment.

Edward H. Krog, from Plattsburg Barracks, to the Southern Department, for assignment.

Omer A. Couture, from Plattsburg Barracks, to the Southern Department, for assignment.

Wm. A. Kesselring, from Plattsburg Barracks, to the Southern Department, for assignment.

Walter J. Webb, from Plattsburg Barracks, to the Southern Department, for assignment.

Thomas Salmon, from Vancouver Barracks, to the Southern Department, for assignment.

Arnold Koehler, from Ft. McKinley, to the Southern Department, for assignment.

Robert P. Evans, from Ft. Lawton, to the Southern Department, for assignment.

Thomas M. England, from Ft. Geo. Wright, to the Southern Department, for assignment.

Elmer M. Peddrick, from Madison Barracks, to Ft. Adams.

George A. Pippy, from "The U. S. Mine Planter *General Royal T. Frank*," to Ft. Thomas.

John W. Keenan, from Ft. Ontario, to Ft. Adams.

UNITED STATES PUBLIC HEALTH SERVICE.

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service, for the seven days ended May 31, 1916:

Professor C. W. Stiles, detailed to deliver an address on Public Health at the meeting of the Social Service League, Montgomery County, at Takoma Park, Md., June 9, 1916. May 27, 1916.

Pharmacist E. B. Scott, granted one day's leave of absence, May 22, 1916. May 22, 1916.

Pharmacist C. H. Bierman, re-assigned to duty at the Marine Hospital, Portland, Me., effective May 17, 1916. May 29, 1916.

Rupert Blue, *Surgeon-General.*

CHANGES OF ADDRESS.

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the Journal unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given, thus:

Henry Milton,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

Groves, H. C.,
From 419 W. 115th St.
To Addisleigh, St. Albans, L. I.

Niece, F. E.,
From Lynn Ave., Queens, N. Y.
To Lot W, 66 New York, N. Y.

Low, (Mrs.) Harry,
From Apt. 402, 1625 Polk St., San Francisco, Cal.
To Apt. 1, 1249 Broderick St., San Francisco, Cal.

Southard, F. A. (home address),
From 1065 Delta Ave., Cincinnati, Ohio.
To 5619 Bramble Ave., Cincinnati, Ohio.

Norner, P. M. P.,
From 6809 York Road, Philadelphia, Pa.
To 6 S. Frederick St., Pelwein, Ia.

Cloughly, O. J.,
From 1414 Blackstone St., St. Louis, Mo.
To 410 S. 4th St., St. Louis, Mo.

Rabinowitz, Wm. J.,
From 333 State St., Brooklyn, N. Y.
To 1043 Tinton Ave., Brooklyn, N. Y.

Tansey, O. H.,
From 1106 Greene Ave., Westmount, Prov. of Quebec, Can.
To 276 Clifton Ave., Montreal, Can.

Acheson, Wm. R.,
From 80 River St., Cambridge, Mass.
To 8 Park Ave., Cambridge, Mass.

Schulze, Louis,
From Patterson Park and Eastern Aves., Baltimore, Md.
To 2245 Eastern Ave., Baltimore, Md.

Schulz, Emiel,
From Harlingen, Texas.
To Regimental Hospital, 6th Cavalry, Columbus, N. M.

Collier, Wm. K.,
From 7 Argyle Ave., St. Paul, Minn.
To 683 St. Peter St., St. Paul, Minn.

Wurdack, John H.,
From 51 Grape St., Knoxville, Pittsburgh, Pa.
To 15 Grape St., Mount Olive P. O., Pittsburgh, Pa.
Hover, Wm. T.,
From 426 Gilpin St., Denver, Colo.
To 1439 Franklin St., Denver, Colo.
Fernandez, Antonio Caparoy,
From P. O. Box 50, Havana, Cuba.
To Ganao, Cienfuegos, Cuba.
Hageman, Theo. Chas.,
From 1599 Chouteau Ave., St. Louis, Mo.
To Hagenow, Theo. Chas., 1701 S. Grand Ave., St. Louis, Mo.
Farwell, Oliver Atkins,
From 449 McClellen Ave., Detroit, Mich.
To 419 Field Ave., Station C., Detroit, Mich.
Buss, Oliver C.,
From 6104 Kenwood Ave., Chicago, Ill.
To 6751 Blackstone Ave., Chicago, Ill.
Bernstein, J.,
From 22 Gorham St., Rochester, N. Y.
To 45 Peckham St., Buffalo, N. Y.
Goheen, Ira Less,
From 1014 Mississippi St., Lawrence, Kans.
To Alta Vista, Kans.
Stevenson, A. E.,
From 1625 Transportation Bldg., Chicago, Ill.
To 204 Old Custom House, St. Louis, Mo.
Strauch, Henry J.,
From 1011 Franklin St., Pittsburgh, Pa.
To 272 46th St., Pittsburgh, Pa.
Sheehy, Maurice Wm.,
From National Military Hospital, Dayton, Ohio.
To 413 Hopkins St., Cincinnati, Ohio.
O'Brien, R. K.,
From 222 N. Craig St., Pittsburgh, Pa.
To Blenheim Apts., Friendship and Gross Sts., Pittsburgh, Pa.
Muhlhause, O. W.,
From 1520 Latrobe Park Terrace.
To 1517 E. Fort Ave., Baltimore, Md.
Hance, A. M.,
From 623 Callowhill St., Philadelphia, Pa.
To 201 Walnut Place, Philadelphia, Pa.
Mitschele, S. H.,
From 86 Hudson St., Hoboken, N. J.
To 115 Palisade Ave., Jersey City, N. J.
Eisele, George,
From 1458 E. 16th St., Cleveland, Ohio.
To 29 Van Buren St., Cleveland, Ohio.
Roesener, W. C.,
From 204 W. Randolph St., Chicago, Ill.
To 161 N. Franklin St., Chicago, Ill.
Taylor, F. O.,
From 53 W. Alexandine, Detroit, Mich.
To 54 Philadelphia, E., Detroit, Mich.
Neninger, F. N.,
From 348 State St., Brooklyn, N. Y.
To 435 Pacific St., Brooklyn, N. Y.
Clark, A. H.,
From 74 E. 12th St., Chicago, Ill.
To 701 S. Wood St., Chicago, Ill.
Wetterstroem, Theo. D.,
From 3935 Spring Grove Ave., Cincinnati, Ohio.
To 118 E. 6th Ave., Cincinnati, Ohio.
Wickham, W. H.,
From 91 Fulton St., New York, N. Y.
To 10 West 43rd St., New York, N. Y.
Evans, M. C.,
From 189 Boulevard E., Detroit, Mich.
To 34 Davenport, Detroit, Mich.
Bradt, F. T.,
From 399 Vinewood Ave., Detroit, Mich.
To 302 Maidstone Ave., Detroit, Mich.
Buehler, Carl T.,
From 4673 Evans Ave., St. Louis, Mo.
To Cole Camp, Mo.
Gilbert, C. Thurston,
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To Cor. Conn. Ave. and Boardwalk, Atlantic City, N. J.
University of Illinois,
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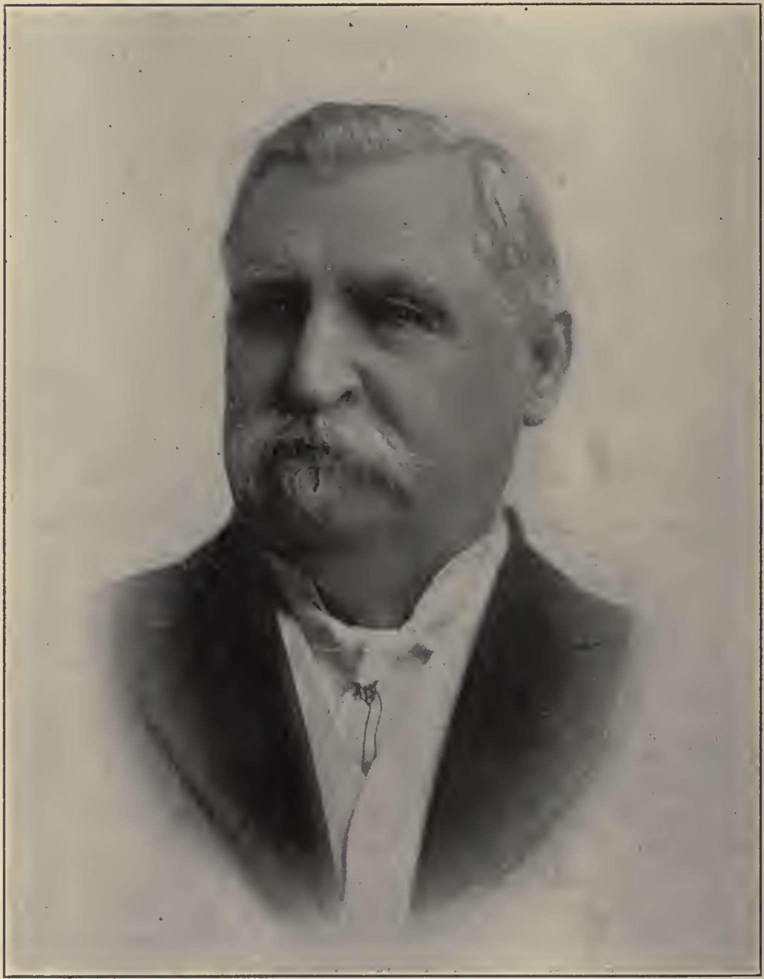
OTTO AUGUSTUS WALL, Ph.G., M.D.

Presiding Chairman of United States Pharmacopœial Convention, at Washington, D. C.,
May, 1910.



OTTO A. WALL

JOURNAL OF THE
AMERICAN
PHARMACEUTICAL
ASSOCIATION

VOL. V JULY, 1916 NO. 7

OTTO AUGUSTUS WALL.

Professor Otto A. Wall became familiar with the published proceedings of the American Pharmaceutical Association in June, 1864. On that date, he, at the age of eighteen, entered pharmacy as an apprentice under tutorship of Dr. Enno Sander, of St. Louis. His preceptor had joined the Association six years previous, and subsequently served as president and honorary president. Dr. Wall became a member in 1884 and will soon be on the Life Membership List by statute of limitation (thirty-seven years). Dr. Wall has the distinction of being the only one to serve two terms as president of the Missouri Pharmaceutical Association. Dr. Wall was a member of the Committee on Revision of the U.S.P. in 1880–1890 and again in 1890–1900. He was vice-president for 1900–1910 and presided at the convention of May, 1910, with marked parliamentary skill. In 1873, Dr. Wall sold a drug store which he had conducted for a short time.

This interesting figure in American Pharmacy is most widely known as a teacher. He succeeded Dr. Enno Sander as professor of materia medica and botany at the St. Louis College of Pharmacy in 1873, and has continued as a very popular instructor in the same position ever since. He held the corresponding chair in the Missouri Medical College for several years and for a time taught chemistry in that institution.

Professor Wall was on the editorial staff of the National Druggist from 1885 to 1887 and was one of the early writers on microscopy and photo-micrography in pharmaceutical periodicals of this country. As an author, his first book was "The Prescription," which is a classic on the subject. "Wall's Pharmacognosy Notes" is a very practical work and the same may be said of his "Lessons in Latin." Dr. Wall is the editor of the *Bulletin* of the St. Louis College of Pharmacy. He was graduated with honors from the St. Louis College of Pharmacy in 1868, the Missouri Medical College in 1870, and the Bellevue Hospital Medical College in 1871. He practised medicine until 1882. For several years following, he was engaged in pharmaceutical manufacturing on his own account.

With other accomplishments, Dr. Wall is a talented artist with some years of education in art and a life-long love for the same. In early years, he gave much attention to music.

H. M. WHELPLEY.

EDITORIAL

E. G. EBERLE, Editor **253 Bourse Bldg., PHILADELPHIA**

PHARMACISTS IN THE UNITED STATES ARMY ARE GIVEN MORE PAY.

CHAIRMAN S. L. HILTON of the Committee on the Status of Pharmacists in the Government Service, in the April number of the JOURNAL, p. 400, explained the proposed changes in the reorganization of the U. S. Army, affecting the pharmacists in such employ. The bill as outlined by Chairman Hilton has now become a law, whereunder the Hospital Corps becomes part of the Medical Department. Two new ranks have been created, namely, Master Hospital Sergeants and Hospital Sergeants. The former receive $75.00 per month with allowances for food and clothing as for Master Engineers, Senior Grade, and the latter $65.00, with allowances for food and clothing as for Master Engineers. The former pass an examination in pharmacy by a board of one or more *medical* officers, and they must have served one year as a Sergeant of First Class. In the proposed army of 175,000 men, the Hospital Corps will have 437 corporals, 1162 sergeants, 612 sergeants first class, 43 hospital sergeants and the same number of master hospital sergeants.

While this is progress, in a way, as it incorporates everything that was asked for in the Hughes-Bacon Bill, the highest grade should have been given commissions, more particularly in view of the increase of the enlisted army and a desire to improve conditions, comparative to those of other nations. It would have been something for them to aspire to by becoming qualified, befitting the dignity of the rank.

The pharmacists in the Government Service can rest assured that the strong desire of the American Pharmaceutical Association is to see men in their department who will reflect credit on the profession and that the organization will do everything possible to better their conditions and standing. It seems that at this time it would have been unwise to insist on further consideration; should the United States be involved in war with Mexico, there will be an abundance of work for the Hospital Corps to do, by which they can demonstrate their usefulness and their right to higher professional recognition. E. G. E.

STATE NARCOTIC LAWS SHOULD COMPLEMENT THE HARRISON ACT.

IN this issue of the JOURNAL will be found an article on the Harrison Act, in which the recent Supreme Court decision is cited and the operations of the law explained by Mr. Ephraim Lederer, whose experience and deep interest in this important legislation gives the contribution added value.

The decision of the Court declared the constitutionality of the law by the words which decided that the conviction of an unregistered person, found with proscribed drugs in his possession, is not in conformity with the intent or powers of the same law; or perhaps better, any other construction would have brought forward the question of its constitutionality.

The moral purposes for which the legislation was contemplated cannot be as fully carried into effect by this revenue measure as many had expected; while it may be possible, as Mr. Lederer suggests, that Congress can enact legislation providing "an entirely effective check on the great evil which the Harrison Act was designed to cure," still there is no question that states can, if they will, enforce such legislative provision, in fact, it would seem that this is a right and duty of the state.

Under the decision a physician prescribing the restricted drugs, even though the object is chiefly to satisfy the patient's craving for the narcotic, is not committing a punishable offense against the United States, but certainly he is offending the community in which he resides. The state should defend itself against such infraction through its police powers, and utilize the proffered means for investigating violations and of securing information from the registration records that are required under the Harrison Act and open for inspection to its officials.

The wording of the federal enactment clearly indicates that state coöperation was expected and deemed essential for carrying out the moral end, but this was not fully recognized until now. Many opposed contemplated state regulations, believing that these would simply duplicate annoyances without accomplishing any more than could effectively be done under the Harrison Law. Such inaction is now no longer excusable and, as soon as possible, provisions should be made for amending state narcotic measures so that they will apply to violations beyond the reach of the federal law.

Interstate shipments and the dealing in restricted drugs by registered persons are well looked after by the Revenue Department; over other sellers and prescribers the state should have supervision, fully empowered by adequate laws to prosecute offenders. However much it may be regretted that the defect of the Harrison Law has been judicially pointed out, because of the temporary stimulus given to this reprehensible traffic, a relatively greater benefit will accrue if states and municipalities will recognize their duty by taking prompt action in providing the needed legal regulations. While the first thought is for restriction of sales, and punishing those who lend themselves to such schemes, the unfortunate addicts who are not in position to present their claims for public protection and assistance should have consideration. A prison is not the proper place for these unfortunates.

The regulation of sales of narcotic drugs therefore again offers a very important topic for discussion, not only for State Associations, but also for the Section on Education and Legislation of the American Pharmaceutical Association.

In our opinion the Model State Narcotic Law,[1] proposed by the National Association of Retail Druggists and drafted by Messrs. J. H. Beal, Frank H. Freericks and Hugh Craig, requires few if any changes to make it adaptable in all states. The suggestion of the draft indicated a foreknowledge of the defect brought out in the Harrison Law Decision, and the construction of the model evidences most careful and thoughtful investigation. The associations are indeed fortunate in having this excellent draft, ready for further consideration, if necessary, and adoption. E. G. E.

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[1] Printed in JOURNAL A.PH.A., May, 1915, p. 627. See also comments by Hugh Craig, December, 1915, p. 1428, and H. F. Freericks, March, 1915, p. 397.

USE THE METRIC SYSTEM—NOT EQUIVALENTS.

THE daily and general use of the old weights and measures in this country has so familiarized everyone with this system that no effort of mind is necessary for readily expressing the volume and mass implied by the terms of such weights and measures.

There is a general preference for the simplest numerical values—the terms one ounce, one drachm, one grain are being preferred by many to 30 mils, 4 mils, or 65 milligrammes. Likewise usage has created a preference for fractions implying divisions by half, quarter, eighth, rather than fifth and even tenth, or the rendition to decimal values of the fraction.

The commercial application and instruction in the schools perpetuate the use of the old system—experience and early training leave very lasting impressions. It will require an Act of Congress to change these conditions, and as the United States is seeking trade in countries where the metric system is in common use, the present seems to be an opportune time for such action, as commercial advantage is always a potent factor in overcoming trade obstacles. England is experiencing the same difficulty we have, and Xrayser, in *Chemist and Druggist* for May 13, 1916, says: "Not till our purchases are made by metric weights and measures shall we really become so familiar with the system as to introduce it in sales. In view of the future of *our world trade,* the sooner we adopt the system throughout, the better for us." And what is true of England is true of the United States.

However, coming back to the object of this writing, the physician is largely to blame for hindering the more general adoption of the metric system in pharmacy, because he designates doses, weights and measures in the denomination of the old system; a like condition obtains with the formulas of manufacturers for pills, tablets, etc., though in other pharmaceutical products these manufacturers employ the metric system. These are the sequences of long usage, for the metric system is employed exclusively only in a few of the industries of this country, and the Government does not insist on its exclusive use in every one of its departments.

Authors of books, quite naturally, have a desire to give their patrons all the information and every convenience possible; they will continue to use alternative formulas, and in many instances entirely ignore the metric system. The pharmaceutical publications have the same thought in mind when they designate the terms of the old system in publishing general formulas. Most of the writers of pharmaceutical papers, but not all, employ the metric system. It is not to be expected that the editor, without permission, will make the transposition; if he did this with exactness, the figures beyond the decimal point would be extensive. So these are potent factors in preserving the old attachment.

Ever since the graduation of chemical glassware in the metric system, volume measurements of 10 Cc., 50 Cc., etc., capacity have been adopted for obvious reasons. However, prescription bottles are made to hold volumes of 30, 60, etc., mils, in reality based on one fluidounce, two fluidounces, etc. Likewise in the manufacture of graduated measures the same volume markings are made. Graduated metric measures should have capacities of 25 mils, 50 mils and so on up to 1000 mils; the metric weights should include a 25-gramme counterpoise.

The capacity of prescription bottles has heretofore been based on the fluid ounce, and in adopting the 30-mil measurement, the basis would remain the same, and this should not obtain. Instead of 30 mils, etc., the metric bottles should have a capacity of 25 mils, 50 mils, etc., and less volume, 10 mils. It may be said that the teaspoonful dosage has had somewhat to do with the different sizes of bottles, and that the physician prescribes a certain number of doses that conform to these sizes of containers; that for related adaption one dozen pills, capsules, etc., are prescribed. But this largely follows a custom, and after experience, a calculation for 10 doses will be found even more convenient; manufacturers put up pills in bottles of 100.

It is said that a commercial opportunity strengthens a business proposition, therefore the following. Every druggist will admit that the retail sale-prices require adjustment, but that a direct raising of selling-prices would not meet public favor. The method here suggested would actually constitute an advance in price by affixing the present selling-price of say a fluid ounce to 25 mils, and that of an avoirdupois ounce for 25 grammes. This, of course, is stated under the presumption that higher charges are deemed advisable, and may afford a ready way for such establishment under a new system of weights and measures. When a profit is no longer derivable from a long accustomed selling price, the only reasonable way to do is either to give less for the money or demand more money for that amount; there is no more reason for permanent prices in the drug store than in other lines.

The metric system has large advantages that need no presentation in this brief, but the attempt at aligning this system with the old should be discouraged in every possible way, because the one is not developed from the other. Think in the metric system, weigh and measure the quantities with metric weights and measures, and very soon the senses of seeing, hearing and feeling will do their part, without noticeable effort of the mind. By this is meant, that seeing the written denominations, or hearing them spoken, the volume or weight will at once be associated therewith; just as is the case with those who are now experienced in the old system and who lack the same familiarity with the metric.

The Wholesale Grocers' Association contemplates having the weight, in denominations of both systems, on package goods, attempting thus to familiarize the people with the metric system. This very method, however, is in reality a hindrance to the establishment of the metric system—a habit may perhaps be eliminated by tapering off, but the rational and courageous way is to absolutely quit it, and with sincerity of purpose, stand by the resolve. The idea of the Wholesale Grocers' Association has been tried during the last 50 years, with the result that only those who really discarded the old and adopted the new (more than a century old, by the way) have made real progress; all of those, including druggists, who pursued the other course are just about as far from general usage as they were when the idea of gradual adoption possessed them.

The metric system is universally employed for scientific purposes, its international commercial use is even more imperative, but as such adoption requires many significant changes, the progress is slow, though in late years decided headway has been made. The universal acceptance will be of great commercial benefit, enabling buyer and seller, without resort to calculation, to know what their exchange is based on.

This progressive age, with every country seeking new territory and new trade, in which they will find competitors of every other nation, will hasten a general adoption of the metric system. Pharmacy, as one of the world's activities, should encourage the movement in every possible way, having the further incentive of accepting a system employed in their scientific work and made the legal standard by the Pharmacopœia and National Formulary, both of which become official September 1, 1916. E. G. E.

THE INFLUENCE OF THE ASSOCIATED ADVERTISING CLUBS OF THE WORLD ON BUSINESS AND THE INDUSTRIES.

LESSONS may be taken by every other association from the Associated Advertising Clubs of the World, which, though instituted only a few years ago, is one of the most important organizations in the United States.

Advertising had in the past no very definite meaning, then it was questionable whether truth or falsehood was conveyed, and the uncertainty weakened the truthful messages and missions. The progress toward truth in advertising had been coming for years, but the full force of such necessity, to the exclusion of untruth, came rather suddenly, and the body of men who associated themselves for making advertising a more potent factor adopted "Truth in Advertising" as their industrial battle-cry with Service as one of their principle forces.

The Food and Drugs Act has been productive of more good than directly traceable to its enforcement, and may have been the light under which the abnormalities of advertising became monstrous. The association began rightly by investigating the work of their members, then of those they served and the means whereby publicity was given, and finally those who controlled the advertising mediums. The work has not been completed, but no one will gainsay that the progress made has been marvellous. Most advertisements are free from falsehoods and the advertisers know pretty well what they are paying their money for when they buy space. The buyer of advertising does not always possess the attributes he expects the paper to manifest, but the advertiser of that type, who asks for special privileges or considerations, is passing away. The readers are not slow to see underneath the surface of such conditions, and as a result the interests of both suffer by losing the respect and confidence of those whom the messages are destined to reach. This subject was one of the topics of the recent convention in Philadelphia.

The preliminary work of the association was followed by offering their services to present and prospective buyers of advertising. The idea is far-reaching and affects every individual, business and industry. Business failures are largely due to ignorance of the cost to do business.

A number of large manufacturing concerns have for some years conducted a systematic instruction course of this kind, employing a force to write articles for papers and magazines, dealing with overhead expense, details, waste, etc. The only derivable value for them is through general improvement in systems of business conduct, which eventually may produce sales for their products. Now the Federal Trade Commission in coöperation with the Associated Advertising Clubs contemplates sending to every manufacturer and retail merchant in the United States a booklet outlining the correct way of keeping accounts. There is the chain—the successful retailer promotes the success of the wholesaler and manufacturer, and they in turn make business for the advertiser.

President Wilson, in a letter to Edward N. Hurley, Chairman of the Federal Trade Commission, wrote on this subject, as follows:

> Your suggestion that trade associations, associations of retail and wholesale merchants, commercial clubs, boards of trade, manufacturers' associations, credit associations and other similar organizations should be enouraged in every feasible way by the Government seems to me a very wise one. To furnish them with data and comprehensive information in order that they may more easily accomplish the result that they are organized for is a proper and useful government function. These associations, when organized for the purpose of improving conditions in their particular industry, such as unifying cost accounting and bookkeeping methods, standardizing products and processes of manufacture, should meet with the approval of every man interested in the business progress of the country.
>
> It is my hope that, in addition to the other work which the Federal Trade Commission is doing, it will ascertain the facts regarding conditions in our various industries. If it finds that an industry is not healthy, it should, after carefully considering the facts, in coöperation with the parties interested, suggest a practical and helpful remedy. In this way many of our difficult business problems might be solved.

Industrial coöperation requires the interest of the Government in all industries of this country, and while for many years the nearly opposite contention was thought to be the patriotic view, this is happily changing and doubtless the Associated Advertising Clubs must be given a share of credit.

The United States is now, more than ever, seeking new markets for the manufactured products of this country, and in supplying such demand, "Made in the United States" should signify *exactly as represented.*

Truthful measure of words and goods and coöperative service are among the forces that have made the Associated Advertising Club influential for good in the business activities of this country. We should entertain fine principles and formulate their expression into sentences, but that is passing beauty, which for permanent good requires that they be more than written phrases, they should be workable and made to work, activated into the living forces of our lives.

E. G. E.

SECTION ON HISTORICAL PHARMACY, AMERICAN PHARMACEUTICAL ASSOCIATION

OPIUM IN THE PHARMACOPŒIA.*

A REVIEW OF THE RECOGNITION ACCORDED TO OPIUM, ITS PREPARATIONS, ALKALOIDS AND DERIVATIVES IN THE SEVERAL EDITIONS OF THE PHARMACOPŒIA OF THE UNITED STATES OF AMERICA.

BY M. I. WILBERT.

From a medical or pharmaceutical point of view few excursions into the realms of the past would offer more in the way of practical or romantic suggestion than would a comprehensive review of the recognition that has been accorded to drugs or their preparations in the official standards for recognized medicines.

The following review of the recognition that has been given to opium, its alkaloids and preparations in the Pharmacopœia of the United States is offered rather as a suggestion of the possibilities than as a complete representation of the history and romance evidenced by even this fragmentary portion of the official materia medica.

At this time it will, of course, not be possible to recapitulate, even briefly, the origin and evolution of the Pharmacopœia itself and it must necessarily suffice to state that taking the Pharmacopœia of 1820 as the origin, the several Philadelphia revisions of that book are generally recognized as its lineal descendants.

Of the 34 titles under which opium with its alkaloids and preparations have appeared in the several editions of the Pharmacopœia, no less than 25 are included in the present edition. Ten of the titles were included in the first edition of the U.S.P. published in 1820 and of this number no less than eight are continued at the present time and are alone worthy of a much more comprehensive review than can be accorded them in a short paper of this type.

The first, in alphabetical rotation, of the official preparations of opium, acetum opii, or vinegar of opium, has been variously known as " black drop," " Lancaster drop," " Quakers' drop " and " Foulke's drop." As originally included in the Pharmacopœia it was a complex preparation of variable composition, depending for its efficiency on the concentration secured by exposure in the fermentation by yeast of a mixture of an aqueous extract of opium with sugar. It appears that the preparation originated with one Edward Runstall, of Bishop Auckland in Durham, about 1720, as a secret remedy. It was long esteemed as being superior to other preparations of opium and on the death of Runstall the formula for making it was published and thus became public property. The formula was subsequently included in several of the British dispensatories and became quite popular in Philadelphia. Because of the uncertainty of its composition efforts were made from time to time to improve it, and Dr. Joseph Hartshorn (1779–1850) induced one of the local pharmacists to prepare for him an acetated tincture of opium which replaced the vinegar of opium in the 1830 Philadelphia edition of the Pharmacopœia of the United States. This preparation, however, was not generally accepted, even in Philadelphia, and Charles Ellis (1800–1874), one of the early presidents of the American Pharmaceutical Association, in 1839 outlined a method for making a vinegar of opium as a substitute for the old time "black drop." This preparation was subsequently introduced into the 1840 Pharmacopœia with the synonym "black drop," practically in the form in which it now appears. The acetated tincture of opium was also retained practically unchanged, to and including the revision of the U.S.P. in 1870.

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* Read before the Historical Section, A. Ph. A., San Francisco meeting.

By far the greater number of the drugs and preparations which appear in the Pharmacopœia of the United States of 1820 were previously recognized in the Edinburgh Pharmacopœia, which, directly or indirectly, was the accepted standard in the greater portion of what was then the United States.

The tincture of opium or laudanum of the first Pharmacopœia of the United States was similar in composition to that of the Edinburgh Pharmacopœia. This preparation is said to have originated with Paracelsus (1493–1541) who was among the first to introduce the use of opium into European countries and who, it is said, owed much of his success in the practice of medicine to the liberal way in which he administered the several preparations of opium used by him.

The one time "Elixir of Paregorick," the present camphorated tincture of opium, is thought to have originated with Le Mort, at one time professor of chemistry at the University at Leyden, early in the eighteenth century. It was introduced into the London Pharmacopœia, in 1721, as "Elixir Asthmaticum."

Wine of opium, still popularly known as Sydenham's laudanum, originated with the father of medicine in England and is even now popular in all European countries despite the fact that in this country and even in England the preparation used and sold as Sydenham's laudanum does not fully reflect the original formula promulgated by Sydenham (1624–1689) himself.

The present official pills of opium are also of English origin and were formerly known as Mathews' or Starkey's pills. They are said to have originated with Starkey and were made and sold by Mathews. At an early period they were introduced into the Edinburgh Pharmacopœia and appear as now a mixture of opium and soap in the first edition of the Pharmacopœia of the United States.

The delay in the introduction of some of the present widely used preparations is rather interesting. Extract of opium, for instance, despite the fact that it was recommended and used at a very early period, was not included in the Pharmacopœia of the United States until 1850, and the deodorized tincture of opium which was recommended by Robiquet (1780–1840) early in the nineteenth century and a formula for which was published by Dr. Robert Hare (1781–1858), Professor of Chemistry in the University of Pennsylvania, in 1827, was not included in the Pharmacopœia of the United States until 1860, despite the fact that practically the same methods were employed in making a number of proprietary preparations of opium that had a very wide sale, notably Battley's liquor opii sedativus and McMunn's elixir of opium, both of which were said to be made according to secret formulas and were subsequently shown to be made in accordance with the method outlined by Hare many years before.

In this connection it may not be generally known to the present day generation of pharmacists that the now official process for making deodorized opium and the tincture of deodorized opium by means of petroleum benzine was first suggested by Albert E. Ebert (1840–1906) in a paper published in the *American Journal of Pharmacy* in 1877 (vol. xxxix, pp. 193–196). The process did not, however, receive official recognition until 1905, when it was included in the U.S.P. VIII.

Morphine was discovered by Friedr. W. Sertürner (1783–1841) early in the nineteenth century, and was described at some length in a paper published by Sertürner in 1816. It was included with the acetate, the sulphates and a solution of the sulphate of morphia in the Pharmacopœia of the United States for 1830, though codeine, which was discovered by Robiquet in 1832, was not included in our Pharmacopœia until more than fifty years later, 1883, in the Pharmacopœia of 1880.

This solution of morphine sulphate, official recognition of which was continued to and including the Pharmacopœia of 1870, was for many years a source of trouble and annoyance. A preparation 16 times the strength of the so-called "United States solution of morphine" was included in the British Pharmacopœias and came to be widely used in this country as "Magendie's solution of morphine." A formula for this British preparation was included in the first edition of the National Formulary with the caution not to confound the two. This caution, however, largely perhaps because of the limited circulation of the first edition of the National Formulary, was not always observed.

One of the distinctly American preparations of the Pharmacopœia and the one containing the least amount of opium has rather an interesting history and one that deserves to be recorded at some length in the future. This preparation, the compound mixture of glycyrrhiza of the U.S.P. VIII, originated with Dr. Benjamin Smith Barton, of Philadelphia (1767–1815), a noted author and botanist, who about 1814 prepared the formula, in the form of a prescription for a cough remedy. This prescription was originally filled at the store of Charles Marshall, Sr., which was subsequently presided over by Elizabeth Marshall, the first woman pharmacist in Philadelphia, a daughter of the elder Charles Marshall. The resulting mixture proved to be so efficient that Dr. Barton ordered its renewal for a number of other patients. To avoid rewriting the prescription at length he gave to the preparation the name "brown mixture," because of its color, and under this name it was long known to the apothecaries of Philadelphia, particularly to the one-time apprentices of Elizabeth Marshall, who, during many decades, were recognized to be the representative, progressive pharmacists of Philadelphia.

Another American preparation, the compound powder of morphine of the U.S.P. VIII, originated with Dr. William Tully (1785–1859) at one time professor of materia medica at Yale and the author of an early American text-book on "Materia Medica or Pharmacology and Therapeutics." The compound powder of morphine or Tully's powder became official in the U.S.P. of 1880 in practically the form in which it appears now, though with the large number of other synonyms, the name Tully's powder is found only in the index of the U.S.P. VIII.

The following brief review of the titles for opium, its preparations and alkaloids, which have appeared in the several editions of the Pharmacopœia of the United States will serve to suggest many additional incidents of pharmaceutic interest. Collectively the list tends to reflect, in rather an impressive manner, the popularity of really efficient preparations and their persistance from decade to decade.

A LIST OF TITLES OF OPIUM, ITS PREPARATION AND ALKALOIDS RECOGNIZED IN THE PHARMACOPŒIA OF THE UNITED STATES FROM 1820 TO 1900.

Opium.—Opium, U.S.P. VIII. The concrete juice of *Papaver somniferum* was included in the primary list of materia medica in the U.S.P. 1820 and continued unchanged to 1850. The alkaloid requirement of at least 7 percent of morphine by the official process was included in 1860. This was increased to 10 percent in 1870, modified to 9 percent for opium in the moist condition in 1880 and in 1890 made to read not less than 9 percent of crystallized morphine as now.

Opium Deodoratum.—Deodorized Opium, U.S.P. VIII. Opium treated with ether was recognized in 1880 as Opium Denarcotisatum, denarcotized opium, with the requirement that it yield 14 percent of morphine. The title was changed in 1890 and the assay requirement in 1900 was made to read from 12 to 12.5 percent of morphine. The U.S.P. VIII also directs the use of purified petroleum benzine in place of ether.

Opium Granulatum.—Granulated Opium, U.S.P. VIII. The granulated form of opium was included in 1900 with the requirement that it yield from 12 to 12.5 percent of morphine.

Opii Pulvis.—Powdered Opium, U.S.P. VIII. Opium, dried and powdered, was officially recognized in 1880 with the requirement that it contain not less than 12 nor more than 16 percent of morphine. This requirement was changed in 1890 to not less than 13 nor more than 15 percent of crystallized morphine and in the U.S.P. VIII to from 12 to 12.5 percent of morphine.

PREPARATIONS OF OPIUM AND ITS ALKALOIDS.

Acetum Opii.—Vinegar of Opium, U.S.P. VIII. This title appears in the Pharmacopœia of 1820 with the synonym black drop and the directions to ferment an aqueous extract of opium and spices with yeast, after the addition of sugar. This preparation was continued in the 1830 New York edition but omitted from the 1830 Philadelphia edition, which latter contains a formula for acetated tincture of opium. A modified formula for vinegar of opium (2:13) with the synonym black drop was included in the U.S.P. for 1840. The formula was changed in 1880 to 10 percent of powdered opium.

Collyrium Plumbi Acetatis et Opii.—Collyrium of Opium and Acetate of Lead, U.S.P. 1820. This preparation, somewhat similar to the lead and opium wash of the National Formulary, appears but once.

Confectio Opii.—Confection of Opium, U.S.P. 1870. This one time popular confection was made official in 1830 and continued through the several editions of the U.S.P. to 1870.

Emplastrum Opii.—Opium Plaster, U.S.P. VIII. The plaster of opium was made official in 1840. The formula was changed in 1880 to the use of extract of opium as now.

Extractum Opii.—Extract of Opium, U.S.P. VIII. The aqueous extract of opium became official in 1850. An alkaloid requirement of 18 percent of morphine was included in 1890 and changed in 1900 to 20 percent of morphine.

Linimentum Saponis et Opii.—Liniment of Soap and Opium, U.S.P. 1830. This preparation was official in 1820 and continued in the Pharmacopœia of 1830.

Liquor Morphiæ Sulphatis.—Solution of Sulphate of Morphia, U.S.P. 1870. A solution of 1 grain of morphine sulphate in a fluidounce of water was made official in 1830 and continued unchanged up to and including the Pharmacopœia of 1870.

Mistura Glycyrrhizæ Composita.—Compound Mixture of Glycyrrhiza, U.S.P. VIII. The well-known brown mixture became official in 1850. In 1880 the formula was changed to require the pure extract of glycyrrhiza and in 1900 the synonym was omitted from the text but still appears in the index..

Pilulæ Opii.—Pills of Opium, U.S.P. VIII. This mixture of soap and opium appears in the Pharmacopœia of 1820 and has been continued practically unchanged to the present time.

Pulvis Ipecacuanhæ et Opii.—Powder of Ipecac and Opium, U.S.P. VIII. The Latin title of this preparation appears in the Pharmacopœia of 1820 as now, though the English title, for a number of decades, was given as powder of ipecacuanha and opium with the synonym Dover's powder. The diluent used up to and including the Pharmacopœia of 1870 was potassium sulphate. In 1860 the title of the preparation was changed to Pulvis Ipecacuanhæ Compositus, compound powder of ipecacuanha, with the other two titles as synonyms. In 1880, with the use of sugar of milk as a diluent, the title was again changed to Pulvis Ipecacuanhæ et Opii but the English title appears as now, powder of ipecac and opium.

Pulvis Morphinæ Compositus.—Compound Powder of Morphine, U.S.P. VIII. This preparation appears first in the U.S.P. 1880 with the synonym Tully's powder. In the U.S.P. VIII the synonym was omitted from the text but still appears in the index.

Suppositoria Morphiæ.—Suppositories of Morphia, U.S.P. 1870. Cacao butter suppositories, each containing ½ grain of sulphate of morphia.

Suppositoria Opii.—Suppositories of Opium, U.S.P. 1870. Cacao butter suppositories, each containing 1 grain of opium.

Suppositoria Plumbi et Opii.—Suppositories of Lead and Opium, U.S.P. 1870. Cacao butter suppositories, each containing ½ grain of opium and 3 grains of lead acetate.

Tinctura Ipecacuanhæ et Opii.—Tincture of Ipecac and Opium, U.S.P. VIII. This preparation was included in the Pharmacopœia of 1880 practically as it appears at the present time, a mixture of deodorized tincture of opium and fluid extract of ipecac.

Tinctura Opii.—Tincture of Opium, Laudanum, U.S.P. VIII. This widely used tincture, as it appears in the Pharmacopœia of 1820, represents 1 ounce of opium in 16 fluidounces of the completed preparation. The strength of the preparation was changed from time to time until 1880, when it was practically put on a 10 percent basis, though the morphine requirement in the several revisions since that time has been changed slightly.

Tinctura Opii Acetata.—Acetated Tincture of Opium, U.S.P. 1870. This tincture (1:10) was introduced in the Pharmacopœia of 1830 as a substitute for the then widely used vinegar of opium. It was continued practically unchanged up to and including the Pharmacopœia of 1870.

Tinctura Opii Camphorata.—Camphorated Tinctura of Opium, Paregoric, U.S.P. VIII. This old time mixture was made official in 1820 as Tinctura Camphoræ Opiata, opiated tincture of camphor, "formerly paregoric elixir." The formula, at that time, included among other ingredients extract of glycyrrhiza and clarified honey. The title was changed in 1830 to the present one and the formula in the Pharmacopœia of 1840 omitted the extract of glycyrrhiza. The formula in the Pharmacopœia of 1880 substituted glycerin in place of honey.

Tinctura Opii Deodorati.—Tincture of Deodorized Opium, U.S.P. VIII. This preparation became official in the Pharmacopœia of 1860 as Tinctura Opii Deodorata, deodorized tincture of opium, an aqueous extract deodorized with ether and preserved by the addition of 25 percent of alcohol. The strength of the preparation was the same as tincture of opium, 1:13. With tincture of opium it was changed to 1:10 in the Pharmacopœia of 1880 and the morphine content requirement for the preparation has been similar to that for tincture of opium since that time.

Trochisci Glycyrrhizæ et Opii.—Troches of Glycyrrhiza and Opium, U.S.P. VIII. These troches were first included in the Pharmacopœia of 1820 as Trochisci Glycyrrhizæ cum Opio, troches of liquorice and opium, and were originally flavored with tolu. The Latin title in the Pharmacopœia of 1830 was changed to that in use at the present time and the formula was changed in 1850 by substituting the use of oil of anise for tolu as a flavor. The English title was changed, in 1880, to the form used at the present time.

Trochisci Morphiæ et Ipecacuanhæ.—Troches of Morphia and Ipecacuanha, U.S.P. 1890. These troches were included in the Pharmacopœia of 1870 and the title in 1880 was changed to Trochisci Morphinæ et Ipecacuanhæ, troches of morphine and ipecac.

Vinum Opii.—Wine of Opium, U.S.P. VIII. This wine was included in the Pharmacopœia of 1820 with the statement that it was "called Sydenham's Laudanum." Originally it represented 1 ounce of opium in 8 fluidounces of the completed preparation. The synonym was omitted from the Pharmacopœia of 1820 and the formula in 1880 was changed to 10 percent of powdered opium. In the Pharmacopœia of 1890 it was required to contain from 1.3 to 1.5 percent of morphine, but the present U.S.P. VIII omits these requirements and again includes "Sydenham's Laudanum" as a synonym in the index.

ALKALOIDS OF OPIUM.

Apomorphinæ Hydrochloridum.—Apomorphine Hydrochloride, U.S.P. VIII. This alkaloid was included in the Pharmacopœia of 1880 as Apomorphinæ Hydrochloras, hydrochlorate of apomorphine. The title was changed in the U.S P. VIII to Apomorphinæ Hydrochloridum, Apomorphine Hydrochloride.

Codeina.—Codeine, U.S.P. VIII. This alkaloid of opium was included in the Pharmacopœia of 1880. The official recognition of the product prepared from morphine by methylation was added in the U.S.P. VIII.

Codeinæ Phosphas.—Codeine Phosphate, U.S.P. VIII. The phosphate of the alkaloid codeine appears for the first time in the U.S.P. VIII.

Codeinæ Sulphas.—Codeine Sulphate, U.S.P. VIII. The sulphate of the alkaloid codeine appears for the first time in the U.S.P. VIII.

Morphina.—Morphine, U.S.P. VIII. This alkaloid of opium was included in the Pharmacopœia of 1830 as "Morphia" with directions for making. These directions were included in the several editions of the Pharmacopœia to 1870 but were omitted from the 1880 Pharmacopœia, the title at that time being changed to Morphina, morphine, with a description of the physical and chemical properties of the alkaloid and tests for identity and purity.

Morphinæ Acetas.—Morphine Acetate, U.S.P. VIII. The acetate of the alkaloid morphine was included in the Pharmacopœia of 1830 as Morphiæ Acetas, acetate of morphia, with the directions for making from morphia. The monograph remained practically unchanged up to and including 1870. In the 1880 edition of the U.S.P. the method for making was substituted by a comprehensive description and tests and the title changed to Morphinæ Acetas, morphine acetate.

Morphinæ Hydrochloridum.—Morphine Hydrochloride, U.S.P. VIII. The hydrochloride of the alkaloid morphine became official in 1840 as Morphiæ Murias, muriate of morphia, with directions for making from morphia. The title was changed in 1880 to Morphinæ Hydrochloras, hydrochlorate of morphine, and the formula for making substituted by a comprehensive description with tests. The title, in the present Pharmacopœia, was changed to Morphinæ Hydrochloridum, morphine hydrochloride.

Morphinæ Sulphas.—Morphine Sulphate, U.S.P. VIII. The sulphate of the alkaloid morphine became official in 1830 as Morphiæ Sulphas, sulphate of morphia, with directions for making from morphia. The title was changed in 1880 to Morphinæ Sulphas, sulphate of morphine, and in common with the other salts of morphine the formula was omitted, being substituted by a rather comprehensive description and a number of tests.

AUTOBIOGRAPHIES OF AMERICAN PHARMACISTS.*

BY WILHELM BODEMANN.

To the Historical Section of the American Pharmaceutical Association:

As the name of this Section implies, history of American pharmacy is your chief object.

In my humble opinion a true history of American pharmacy is next to impossible if the leading members of our profession do not file with the properly instituted central headquarters their autobiographies.

The Chicago Veteran Association has undertaken to write the history of Chicago pharmacy, and to that end the members of this Association must file their autobiographies with the historian. On several occasions I have recommended to the American Pharmaceutical Association the establishment of similar Veteran Associations throughout this country. Not until at the Detroit meeting did my suggestion meet with support and there it was acted on favorably. May I ask with what result? The different Branches would form the natural nucleus for such an undertaking, taking it for granted that pharmacists who have been in business as retailer, manufacturer, teacher, proprietary man or jobber long enough to be eligible in a Veteran Association, and are pharmacists at heart—are members of these Branches—if they are not, they ought to be—and perhaps the establishment of Veteran Associations would hold out an attraction for pharmacists to join the American Pharmaceutical Association.

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* Read before the Historical Section, A. Ph. A., San Francisco meeting.

Men in our profession who have made good in some way or other to be entitled to the name of an American pharmacist generally have been engaged in pharmacy long enough to be eligible as veterans—they also have a story to tell—nobody can tell their story as well as they themselves, and mighty certain it is, that most of us can do this job a great deal better before the funeral than after, no matter how impressive said funeral may be. When Abraham pled for mercy he came down in his claims from about 50 to 10 individuals worthy to be saved from the wrath of fire and brimstone. I do not believe in coming down on prices and not on figures, and will not make an exaggerated claim as to figures, but I do firmly believe if the establishment of Veteran Associations, under the auspices of the A.Ph.A. would rake together the autobiographies of only 100 men in the United States who have made a mark in ever so humble a way in pharmacy, the historian of future American pharmacy would have a picnic to launch his Volume of American Pharmacy, that would be epoch making.

What else would be necessary than the full autobiographies of say 100 hustlers in active retail pharmacy, manufacturing, jobbing or teaching pharmacy? *"Nomina odiosa sunt."* I will not name one, but you all know the names of the men I have in mind. If you could arouse their lethargy to the reverse, to an enthusiastic energy to do their share in making the lot of the future historian a bed of roses, the American Pharmaceutical Association would add another jewel to the Tower of Jewels erected in the name of Pharmacy.

Most of you have read the autobiography of our friend, Winchell Forbes, whipped into a literary delicatesse by our friend Beal. Give us 100 such rare morsels and the perusal of such literature would go a great way to make better pharmacists out of our young men. I therefore most humbly again repeat my recommendation: Roman history tells us of Cato's famous "Cæterum censeo," which he proclaimed at every session of the Senate and on every possible or impossible opportunity till Carthage was destroyed. I may not live long enough to see the day when the A.Ph.A. lethargy to furnish data to the future historian will be destroyed or turned into beneficent belligerent activity, but as long as my hand is able to yield a pen and my pen don't rust or the ink-well dry up, I shall repeat my *"Cæterum censeo"* to establish American Pharmaceutical Association Veterans' Associations. If that is done you need not take up a collection to erect a monument for me; that one victory will be glory enough.

The Chicago Veteran Association furnished me the inspiration—as the Chicago Association is an inspiration—aside from the autobiographies these Veteran Branches would be a source of joy and recreation to our "Great Men."

We in Chicago prohibit in our camp fire the discussion of shop, politics and religion—we nurse the tender plant of friendship among our members—*"Gemüthlichkeit"* is on our banner! Go ye and do likewise.

SECTION ON COMMERCIAL INTERESTS, AMERICAN PHARMACEUTICAL ASSOCIATION

POSSIBILITY OF A NATIONAL LINE OF NON-SECRETS, TO BE PREPARED BY THE INDIVIDUAL, BUT WITH COMMON OWNERSHIP OF COPYRIGHTED LABELS.*

FIRST PAPER.

BY D. N. ROBIN.

The question of a line of non-secrets has been considered by many druggists, and it is a serious matter.

There are now more than thirty-six non-secret lines on the market; there are many thousands of dollars invested in these lines by various manufacturers—it requires considerable capital to place on the market a non-secret line.

Of the many large non-secret lines which we have on the market to-day I will mention the (*A*) line, which is sold in about five thousand drug stores; (*B*) line, sold in about fifteen thousand drug stores; (*C*) line, sold in about seventy-five percent of the drug stores; (*D*) line, which may be found in various stores, etc.

The (*A*) line we must all admit is the most popular one; the (*B*) line is of a coöperative membership plan; the (*C*) line is manufactured by a pharmaceutical house.

If a non-secret line were proposed we would have to consider first, a popular coined name, and in this instance it is not a case of " What is in a name? "; here a name means considerable. But suppose we did find a good name, what then—how could we get the public to immediately become acquainted with the new name and the new line? Where would the money come from that would be necessary to start a new non-secret line? Both from a financial and a practical standpoint, a national, non-secret line would not be advisable, for the following reason:

Since we must admit that the druggists who sell the (*A*) line are among the leading successful business men in the profession, then the fifteen thousand members of the (*B*) line come next. These men already have considerable money invested in non-secret lines and depend upon the volume of business for profit both in the store and on the stock in the company. It would hardly be probable that these men, who number more than 20,000, would take kindly, and give their support to a new non-secret line.

If a national non-secret line were advocated by national associations such as the American Pharmaceutical Association or the National Association of Retail Druggists, with the entire profession of pharmacists back of it, why, eventually, the general public would be using such a line exclusively and the druggists would lose considerable money by having a lot of non-secret remedies on their shelves as dead stock, and unfortunately they are encumbered with a number of non-secret and various other remedies on their shelves as dead stock now.

We already have enough national non-secret lines. The druggists are showing their preference for their particular line or lines and pushing it or them as hard as they can.

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* Read before the Section on Commercial Interests. This article and the succeeding one by Theodore D. Wetterstroem were written in response to a query propounded by the Section.

My proposition is this: That instead of considering a national non-secret line, if the American Pharmaceutical Association wishes to actually be of assistance to the retail drug business, it consider a *commission,* to be known as a committee on non-secret and other preparations, prepared by druggists actually engaged in the retail drug business at the time they offer a preparation or preparations to the commission for sale by other druggists; and the preparation or preparations must have copyrighted labels before they can be considered.

Suppose John Doe in Philadelphia has been putting up a preparation under a copyright label. We will say for a number of years his patrons have been using this preparation and have found it satisfactory. John Doe, in order to place it on the market, would first be compelled to create a demand for it in, say Chicago, New York, and elsewhere, which would require considerable money. Not knowing whether the expenditure would justify the receipts, John Doe spends a little money on cartons, labels, etc., and sells a few packages or bottles over his counter, when he probably has as meritorious an article as one that is largely advertised.

Now supposing John Doe were to send a sample of his preparation to the A.Ph.A. Commission and a fee of $5.00; the commission would investigate the preparation and give a report through the JOURNAL of its findings, as is done by the *Journal of the American Medical Association;* only in this case, if the commission upon investigation found that a preparation submitted had no merit, or was imperfect, the person who submitted the article would be briefly notified of the fact. If John Doe's preparation was accepted and the notice should appear officially in the JOURNAL, a further notice could be added, that the same could be purchased of John Doe, whose address is ———, or if John Doe so states to the commission, the preparation may be bought through the jobber.

Without exaggeration I can state that more than three thousand druggists are at the present writing putting up one or more preparations under a copyright label. These run from hair tonic to corn cures, etc. If these three thousand druggists could be interested in the plan as outlined, and each one send in his preparation with the fee of $5.00 for each preparation, the commission would have $15,000 with which to start work on. The American Pharmaceutical Association would not have to invest a cent in the work.

The proposition that the druggists would have to see, would be that they could secure articles of known formula and articles that were passed on by a commission of the Association. That in itself would be a good advertisement to the public, for even now the public imagine when they purchase an article which has on the label, "Guaranteed under the Pure Food and Drug Law," that the government guarantees the article.

And let me add right here very emphatically that any druggist who would mistrust his fellow druggist, by thinking that if he were to submit his formula, some other druggist would steal it and make something similar, if I were on the commission I would immediately vote to have such article turned down. For while there are a very few unscrupulous persons in the drug business, I believe that ninety-nine percent are trustworthy and reliable.

In Conclusion.—If the American Pharmaceutical Association does consider such a commission, after a very short period they will derive considerable benefit therefrom; also the three thousand or more druggists who are at the present time trying to put various articles on the market would be gainers by such commission.

It is about time that we as druggists consider our fellow workers and reciprocate with them in more ways than by boosting an "X. Y. Z." non-secret line, or other such mercenary coöperation. Why not give the John Doe Company an opportunity to buy larger quantities of bottles, or cans, or labels, etc. He cannot do so now, but if John Doe's preparation was guaranteed by the commission and the other druggists all pushed it, he could buy his materials, containers, etc., in larger quantities, and so, by getting better prices himself, could offer larger discounts.

Then again, if you buy a nostrum from some unknown manufacturer and find that it is worthless, you are the loser; but if you buy John Doe's preparation, the commission has his formula, prices and discounts, and they know where John Doe is.

Don't you think that this theory, if worked out along the lines suggested, would in a few years be the means of eliminating the so-called dead stock found in the average drug store?

SECOND PAPER.*

BY THEODORE D. WETTERSTROEM.

This subject should appeal to every live pharmacist. To my mind, when properly worked out it is the salvation of the retail pharmacist. We have tried in a legal way to control the selling price of patent medicines to make a reasonable profit, and we have tried to restrict the sale of drugs to the registered pharmacist. Each time up we get a slap in the face, but we keep on hoping that experience will teach us how to put our dreams across.

A plan was presented at the last convention of the Ohio State Pharmaceutical Association by the Chairman of the Propaganda Committee which looks good to me.

In justice to the public the formulas selected should contain no narcotic drugs, and in justice to the physician no formulas should be recommended which seek to remove troubles which require special medical skill. The line of preparations should be confined to household remedies, toilet articles, remedies for the ills of the lower animals, and technical purposes. The formulas should be such as will require no added expense in their production, that can readily be made from stock on hand.

I have full faith in the members of our organization in that they will comply with the price and quantity conditions. A detail man having power to examine, correct, or make public in our official organ will have the same effect as any law now covering the sale of drugs.

To create a demand for these preparations the same tactics that were used for promoting the patent medicines can be employed, with the added pride in offering a preparation of our own make. This puts the line beyond any competition.

Many a druggist has had success in putting up a few preparations under his own name and has often wished to extend his efforts to other preparations but the enormous outlay of cash for containers, labels, etc., to start with has checked him. I believe this comes within the province of association work and can be made self-sustaining.

To be able to say that these preparations are made by yourself and from formulas approved by the association will be the big selling point which the grocery and the department store will not have.

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* Presented to the Section on Commercial Interests, A. Ph. A., San Francisco meeting.

THE BUSINESS NEEDS OF PHARMACY.*

BY W. H. COUSINS.

Among the illustrious men who have chronicled the history of as noble a calling as man ever followed, but few have touched upon that phase of the business that constitutes the very foundation on which success must be builded. The wizards of scientific research have taken the unlettered youth and led him throughout the mystic aisles and taught him the secrets. Listening, wide-eyed and astonished, he has heard the story and seen the birth of an alkaloid; with trembling hand and brain alert, he has beheld the wonderful transformations of chemistry; with attentive ear and tolerant understanding, he has devoured the wonders of serum therapy. He is tutored in the ethical relations that he must maintain toward his co-worker, the physician, in the field of usefulness. He is sent out into the world with material for a great superstructure, though, with sickening certainty, he must realize that he has no foundation upon which to build.

The commercial needs of pharmacy have been overlooked. Our educators have discussed every requisite of success save one. The young pharmacist comes from the laboratory and lecture room with a knowledge of pharmacy that is superb. Before the State Board, he displays a knowledge of the processes of pharmacy, the accuracy and thoroughness of which are beyond criticism. Yet to the veteran of the tile and spatula, who has been throwing bottles at the wall for a lifetime, he is yet a child, because with all the tutorship of the masters of the mystic art, he has never learned that the grand prize of the high calling is a meal ticket and a room key. He has traced rare chemicals to their sources and made them reveal their identity but has never been enlightened on the subject—"*How to pay the rent.*"

To the gray-haired, practical druggist, the battle-scarred graduate of the school of experience, who has given humanity the "once over" and recorded their numbers on the pages of a retentive memory, the pride of Alma Mater and the wonder of the State Board is a joke. He looks on the young man as a matriculate in pharmacy's finishing school. He sizes him up from every angle, and with figures that do not lie, shows that his real worth to a modern drug store is less than the young man could live on. The education of a pharmacist may start in a noble institution of learning that has to its credit nearly a hundred years of usefulness, but until the curriculum is changed, it must have its finish in a "human suffering parlor" where the dollar is a part of the goal.

The pharmacy schools of the country do not merit all the blame for the existing business needs of pharmacy. A part of this blame may be placed at the doors of the journalists of the craft who have evaded commercial pharmacy with a reticence akin to silence. The editorial pages of our greatest publications are prone to discuss elaborately everything that pertains to pharmacy, excepting that one thing that is so needful, if we are to stay in the game—providing for the girl and the babies and garnering a few shekels for the rainy day.. Contributing editors from the ranks send hand-embellished orthographical dreams about how to pack a percolator when really the howling need of the craft is a thesis on how to melt the bearings out of a cash register. The formula page is rife with methods for making everything but a dollar. We seem so fascinated with the work that we forget the wage.

Successful proprietors have come to look on a college graduate as being a man capable of being educated to a degree that he will finally be able to steer a store clear of the breakers to success. So far, the colleges have sent us unfinished products and given us the task of teaching them the business of pharmacy.

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* Read before the joint session of the Section on Education and Legislation and the Section on Commercial Interests, San Francisco meeting.

The writer does not wish to be misunderstood by having any one infer that we do not believe in the highest standards of professional pharmacy. We would not for the world lower the plane of scientific pharmacy one jot or tittle. But since seventy-five percent of the business of a modern drug store comes from in front of the prescription partition, the business needs of pharmacy are at least as important as the scientific or professional needs, though they have never been recognized as such. A knowledge of the business end of pharmacy does not detract from the professional ability of a pharmacist. That a man is able to call the alkaloids by their chemical initials and is versed in the technical processes of pharmacy, should in no way hinder him from being thoroughly conversant with the legitimate dollar-getting methods of modern business. The man who is to come up to the standard of the pharmacy of to-day should be able to make a trial balance and a urine analysis with equal deftness. His inability to do so shows that he is only half equipped. Some of the best pharmacists of this country argue that the business or commercial end of pharmacy cannot be taught successfully in the schools. This we think is an error because not so many years ago many of the proprietors were prejudiced against the college man in favor of the man who got even his technical knowledge of pharmacy in a drug store. We have all seen this theory smashed into smithereens. We know that so far as the scientific side of pharmacy is concerned, the college men of to-day are well-nigh faultless. Our state boards meet men who are wonders of scientific knowledge. If the great teachers are able to graduate men who border on scientific perfection, we know that men may be found who can teach business.

Once the highest priced man on the pay roll of the great factories was the chemist who worked and loved into existence the processes by which the products were made. This is not so to-day. The wizard who sets his own salary, the man who is of greatest importance and who is worth whatever he costs, is not the chemist—he is the man who is doing for the great manufacturing plants what somebody should do for pharmacy. He is the efficiency expert who conserves the company's interests by husbanding its dollars and teaching its employes business.

The needs of pharmacy are not confined to a thorough knowledge of it as a science. That part has been well cared for. A pharmacist who is unable to go further than the preparation and dispensing of medicinal products can play but a small part in what we are pleased to denominate pharmacy to-day. A very small percentage of the drug stores in America can be divided into departments in which the worker is required to do only the work of his department. The ideal pharmacist is the man who can do whatever there is to do. We do not believe that the scientific end has been or can be overdone, but we do believe that scientific achievement has been cheapened because our young pharmacists have not been equipped to meet the business needs of pharmacy. The vocation of a pharmacist is twenty-five percent a profession and seventy-five percent a business. Some of us are loth to admit this, but it is true just the same.

To equip a man for the scientific end of pharmacy alone is very much like teaching a physician anatomy and sending him out into the world as a general practitioner. He cannot succeed. He is not a master of his craft. He is only partially equipped for the work that is demanded of him. A pharmacist should be able to conduct a pharmacy. When he is given a diploma, he is a finished product and should meet every demand of his calling. When a graduate of the engineering department receives the O.K. of the faculty he is ready to dig a tunnel, construct a sky-scraper or build a railroad. When a student finishes the school of law, he is able to take care of himself and his client in any court in the land. But when James Brown, Ph.G., winner of the honors of the graduating class of nineteen fifteen, is placed in charge of a busy store on Main Street and told to make an inventory and render a sworn statement to Bradstreet, of the exact financial condition of the business, he feels like mailing the sheepskin back to the faculty with a request to please cancel the honors. He is up against the task of admitting his gross inefficiency. He must tell his employer that he cannot do it. He must make a confession that is the most humiliating one that any craftsman ever had to make. He must say " I don't know how." He must acknowledge that the job is too big for him. This is enough to kill progress and crush every bit of punch and fighting spirit out of him. Is it any wonder that the pathway of American Pharmacy is thickly strewn with financial wrecks? Can you marvel at the fact that a large percent of the drug stores of this country are insolvent and do not know it? There are stores that have been operated for years that have never been solvent. There has been no time since their establishment that they could have been sold for enough money to liquidate their debts, yet the proprietor thinks he is getting along fairly well and has never dreamed that he has been broke for years. Some druggists at the end of each year wonder why they have no money to show for a year of hard work, but they do not know how to find out. Our educators and the pharmaceutical press are too prone to stand aloof from simple, commonplace business. Too many of us delight to delve into science and discuss the rare products that mean little or nothing to the druggist. We are servants of the craft, and to say that so far we have served it poorly is putting it mildly. We do not mean by this that it is possible to make a financial success of every man who enters the game. We do not expect the craft to get in the class of the *steel trust,* but we do think that a full-fledged pharmacist should be able to conduct the average drug store without hanging out a distress signal when a business problem comes up for consideration.

Our ideal pharmacist is a man learned in the science of pharmacy, who is able to make a statement showing the profit on the business for July with the same ease with which he shows the percentage of iodine in a specimen of the tincture. The plan of pharmaceutical education in vogue at present makes it necessary to employ two men to do what one should do. After we have employed a graduate pharmacist to conduct a store, many times, we find it necessary to go to a hardware store or a lumber yard and find a man who does not know whether a halogen is for soft corns or is a new name for the banana split, but one who can tell an asset from a liability without taking it to the laboratory. Merging the two men we get an efficiency that we should get from one. This condition grates on the nerves of the man who wants both the professional and business side of his business efficiently managed. The outlook is not bright to the young man who has spent two or three years in a college of pharmacy and on completing his course finds that he must serve an apprenticeship at a nominal salary to learn business. Of course, there are a few places in pharmacy for the young man whose ambition is to spend his life wearing out a hole in the floor in front of the tile and who is satisfied with twenty-five dollars a week for dispensing physicians' prescriptions, but he is a long way from being an antidote for the business needs of pharmacy because the man who is satisfied with his salary would be satisfied with his sales, and the druggist who is satisfied with his sales is finished.

We hope that in the near future the business needs of pharmacy will be recognized and met by a system of business education that will equip the young pharmacist to fill efficiently the position in the world's work for which he seeks to qualify.

WOMEN'S SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

THE WOMAN IN HER OWN PHARMACY.*

BY DAISY A. FRICK.

The woman in her own Pharmacy has unlimited possibilities to permeate her personality through her establishment.

There is nothing that can quite take the place of the woman in her own home and there is therefore a wonderful opportunity for the woman who does not manage her own home, to put so much of her self into the next best thing, her Pharmacy, for since that is this woman's choice it has now become her shrine.

To my mind, the personality lent from an individual to an establishment is a chief essential to success. There must be an air of good fellowship, an atmosphere of harmony, a service of worth, merchandise of merit, courtesy in abundance and reliability staunch and true; also a dignity about the place that merits respect and confidence and at the same time a freedom sufficient to bespeak a sincere welcome to every incomer, be he purchaser or guest. These are virtues that are as priceless as rubies.

Now, then, for business. I shall take first, for discussion, the prescription business, for that is the primary motive for choosing pharmacy as a profession, a true, noble calling in behalf of humanity for which woman is particularly adapted.

The deftness of a woman's hand, coupled with that steady clearness of eye and brain, untainted by either liquor or tobacco; the resolve to win for herself the goal to which she has aspired; the human heart in her, maternal in its instinct to be ministering unto some needy body and soul; the genuine fineness of her character, equip her with an ability which will make for success, just as surely as the night must follow the day.

There is no such thing as failure to the woman who wills. Her love for human kind, her knowledge gained, her ability sufficiently displayed, her confidence imposed, she, the woman in her own pharmacy, now has herself in her own hand quite as much as in the hand of the public, whose faithful servant she has now become. For after all it is the service we are able to render that makes life really worth while. The hand that knows not service for another knows not the meaning nor the joy of life.

To indulge in the work of a chosen art becomes such a real pleasure that every department lends a new interest and inspires such zeal that the woman in her own pharmacy is not content unless she can have a hand or at least an eye at all of it. It is her pleasure as well as her privilege to work now here, now there, and to shift in turn the clerks employed, to the various tasks at hand.

The prescription department then is the chief realm of glory. The accuracy of the trained pharmacist develops that skill which thrills one with pride as the mortar, pestle and graduate yield the "Elixir of Life" from that mysterious prescription case.

The rubber goods department is one which should be kept in charge by a competent lady clerk or trained nurse, so the woman in her own pharmacy usually has that business well developed and waits upon most of the customers for those needs.

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* Read before the Women's Section, A. Ph. A., San Francisco meeting.

Then, passing on to the stationery department, a woman is a good judge of qualities of paper, styles of papeteries used, and what is suitable for all classes of correspondence, by all ages and sexes. What she lacks in information along this line she makes it a point to find out. One can learn something new every day. To be a good salesman requires thorough knowledge of the goods to be sold.

There is much pleasure in the buying of stocks of various kinds sold in drug stores, in the arrangements and displays, besides the actual selling of the goods. Meeting people, and constantly studying their faces and ways, adds a great deal of interest to the business.

We now arrive at the toilet goods case, where woman alone reigns supreme. Who can dare say that a man can sell boxes of powders and creams, touching upon the shades of marvelously delicate tints so peculiarly adapted to each individual need, wherein lies the mystic magic of charm to make my lady beautiful, as well as the woman in her own pharmacy? Why, she has nearly all the business of her town, for she knows not only the best kinds, and the best purpose of each article, but something of the texture as well as the formulæ of the wonders compounded by her own hands. For these, too, stand on her shelves and in the cases beside the widely advertised kinds and enjoy a widespread sale, as a result of her personal recommendation.

The sundries are well selected and well arranged. The knowledge of composition and the methods of manufacture are part of the mental equipment which enables the woman to tell why her line of sundries are better than others.

Then comes the soda fountain. Cleanliness, quality, and service are three assets that are absolutely essential to the success of this department. And who can better keep their eye on the cupboard of the soda fountain than the woman in her own pharmacy? It takes a woman to see into the corners, to palatably and economically dispose of the bits of jellies and jams, for as such are the fruits of the fountain to her. There is a great opportunity to make the fountain dainty and attractive, which eventually makes for more business.

The last thing a man usually buys on his way out of the store, if he does not happen to come in for that express purpose, is a cigar; so now it's time for my lady pharmacist to step quickly to the cigar case and put out the choicest cigars that appeal to the taste of man. How can she know the brands, the shapes and the shades of the filthy weed she would not touch but which has, mysteriously hidden within itself, that distinctly pleasing aroma? Why, she masters that in the same way that she masters anything else in which she is earnestly interested (even her husband, when she gets one). She studies the tobaccos, the way they are grown, harvested, and finally rolled, twisted, pressed and wrapped into the wonderful results of cigars. Then she learns how to buy them and later how to sell them. Finally, she learns which cigars are her customer's particular brand, shape and shade and wins his favor, smiles and custom by presenting to his choice just what he wants. That is why he likes to trade with the woman in her own pharmacy.

THE SPHERE OF DRUGGISTS' WIVES AS AFFECTING PUBLIC HEALTH.*

BY MRS. J. M. BLADEN.

The need for thorough sanitation, and for more efficient measures for the prevention of disease, in fact the demand for general conservation of health, is apparent to everyone. Just how much we, as members of the American Pharmaceutical Association, may be able to accomplish along this line becomes of special interest to us.

It seems to me that the druggist's wife has by reason of her knowledge of matters pertaining to health, and her position of more or less influence, peculiar advantages for altruistic service in her community. Certain it is that, as between man and his mate, the latter has opportunities vastly superior to his. And I might even say, here in your presence at least, without fear of my sanity being questioned, that under existing conditions, not even the physician himself exerts more influence towards health conservation than may the druggist's wife, or any equally well-informed and wide-awake woman. For be it remembered, that conservation of health comprehends prophylaxis or prevention of disease only, and does not include curative measures, to which the present-day physician is largely confined.

To learn the sphere of the druggist's wife in this regard, therefore, is only to discover the possibilities at hand for the prevention of disease or the conservation of health, which, after all, spells normal economic efficiency, mental and moral efficiency, the sum total of human happiness—the ultimate good of life.

Very much brain energy has been expended, and valuable magazine space contributed, to the discussion of the conservation of our national resources, and yet withal, mention has scarcely been made of the nation's most vital resources, in fact the most valuable asset from a purely economic standpoint, which is the health of the individuals comprising the nation.

The food and drug laws are vital and much discussed subjects, generally recognized as being economic measures designed for conservation of health. The methods adopted for enforcing these laws in the past, however, have been more or less discouraging, as they have not always been in accord with the securing of the best results from a public health point of view, and even in states where the control of laws regulating the nature and purity of drug products is in the hands of the State Board of Health, the tendency has been to discourage rather than encourage adequate and satisfactory control of all medical supplies.

Some indication of the nature and variability of the products sold as medicine may be had from a comparative study of Hygienic Laboratory bulletins embodying in the form of annual compilations a "Digest of Comments of the Pharmacopœia of the United States and of the National Formulary."

The prevention of disease may be, indeed must be, accomplished in a threefold manner: First, by destruction of pathogenic or disease-producing germs; second, by preventing invasion of the human organism by such germs as may escape destruction; and third, by fortifying the body against the lethal action of the germs which, having escaped destruction and evaded the guards, do gain entrance.

Since the germ theory of disease is established beyond cavil, we may pass to the assumption that microörganisms of the vegetable world do invade the human organism, and such as are pathogenic do produce disease therein. That it is possible to destroy innumerable hosts of this vast army of invasion, no one can doubt. Yet many who recognize this fact neglect to observe it in their daily lives with the scrupulous care it merits, and not a few within the range of our influence are still in ignorance of the menace that hovers over them. Upon those of us who do know rests the burden of encouraging the negligent and enlightening the ignorant. The druggist's wife, more than any other, unless it is the doctor's wife, in whom she will usually find a willing comrade, by virtue of her position, must bear the responsibility of inciting to war, relentless, incessant war, against the invaders. At home, in the club, everywhere, let her teach antisepsis, disinfection, sterilization, any and every means of destroying the omnipotent, though to the unaided eye invisible, enemy.

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* Read before the Women's Section, A. Ph. A., San Francisco meeting.

Directly under the woman's influence are the children of to-day, the men and women of to-morrow, and indirectly the unborn generations yet to come.

After all, so numerous are the invading hosts, and so rapidly do they multiply, that to destroy them all is an utter impossibility. While this is no excuse for the cessation of hostilities on our part, and no suggestion is intended, nevertheless it does bring us face to face with the necessity for the second preventative measure.

If we cannot destroy all obnoxious seeds, we can at least do our part towards preventing those which escape destruction from gaining entrance to the soil. They must remain harmless so long as they do not germinate. Having destroyed what you can, see that the balance are not sown. If this is thoroughly done you may be sure that no disease will follow. By cleanliness, by asepsis, by unremitting war on flies, mosquitoes and all germ carriers, much may be accomplished. Avoid contagions, or if called by duty into their presence, sterilize hands and clothing thoroughly, lest you yourself become a germ carrier. The methods are familiar to all of you. Only make them familiar to your less enlightened sisters and much disease will be preventable.

Doubtless your thoughts have outstripped my language and already arrived at the suggestion I must now confront. If it be impossible to destroy all germs, it is no less impossible to dodge all those still surviving. What then? Are we forced to the conclusion that with all our skill, disease is yet and must continue to be a necessary evil? No. There is one more resource—the third and last method of prophylaxis, viz.: the fortification of the body against the action of such of the enemy as do finally gain entrance. By reason of the campaign of education promulgated by Pasteur and Koch, together with many lesser celebrities within the last decade, few there be who have not received some instruction concerning the two methods of health conservation already mentioned, but, strange to relate, the third and by no means the least of the methods has been sadly neglected. Few, even of the elect, appreciate the tremendous importance of the indomitable army of the defence which benign nature has graciously provided and installed within every human organism for its protection against disease. But for this protection no individual could long survive.

Not a single person reaches mature life who has not ingested or inhaled pathogenic germs galore, or otherwise suffered invasion by the enemies of health. Yet not all succumb to disease. It is evident, therefore, that entrance of pathogenic bacteria into the human organism does not necessarily mean that disease always results from such entrance. How shall we account for this? By the presence of the aforementioned army of defence, which is composed of antibodies, phagocytes, and what not blood elements whose very names ought to insure protection, the technical nature of which does not concern us here, but all of which are designed to destroy pathogenic germs or inhibit their development in the system, and thus protect the body against the invading forces. Here then is war—a world war, not conceived nor declared by man, but waged within him, and for which not even monarchs are at fault.

To abandon the metaphor, the vital resistance of the one is reduced until he succumbs to disease, while in the other, vital resistance is normal and the pathogenic germs are overcome. Lowered vital resistance means susceptibility to disease. Such susceptibility may be hereditary, as in the case of children born of tubercular parents. Like other children they must inhale tubercular bacilli in order to acquire the disease, but unlike the majority of others, their blood is weak in defensive elements and once having inhaled the bacilli they are doomed.

I believe, as yet, they have not been able to prove tuberculosis to be hereditary, but children born of tubercular parents seem to inherit a marked susceptibility for the disease. In many cases, however, susceptibility, which is the opposite of immunity, is not hereditary but readily acquired. Keep the vital resistance up to normal and few disease germs will be able to flourish within the body sufficiently to produce disease.

How can this be done? Largely by the exercise of hygienic measures and common sense. Physical exposure to sudden changes of temperature or long-continued extremes lowers vital resistance. Profound fatigue of body or mind has a similar effect. Intemperance of food or drink, excessive indulgence of any of the appetites or passions, habits of uncleanliness, irregular rest or sleep, all produce marked susceptibility. Worry is one of the most potent factors for the induction of disease, and is so recognized by the medical profession. Any and every thing that tends to reduce mental and bodily vigor contributes towards the success of invading enemies of health and mark one who indulges therein as a traitor to himself and to society.

A knowledge of these facts, even though superficial, once disseminated among the masses would serve to prevent much of the disease and distress now suffered.

Who is better qualified and more worthy of such a mission of mercy and help than the druggist's wife and the members of the American Pharmaceutical Association?

HOW CELLULOID MAY BE MANIPULATED.

I have used celluloid sheet for a variety of purposes where lightness, compactness and transparency were desirable features. Sharp bends may be produced with relative ease by applying a hot iron or other device to the line of the angle. Joints I have and frequently make now with acetone. The two overlapping pieces are held together, acetone is applied from a dropper so as to flow between the surfaces, and these are then pressed firmly together. Adhesion results very quickly so that usually no mechanical holding device is necessary. Irregular bends, especially at junction points, can likewise be made by allowing sufficient acetone to be absorbed by the one part so that it becomes plastic and can be molded into contact with the other part by pressure of the fingers. In this way a dust-proof cover can be produced having also more rigidity when completely dry than the one described in your article.

Collodion sheets obtained by cleaning spoiled negative films are very useful and handy for many purposes, and can easily be manipulated and joined by aid of acetone.—HERMAN S. RIEDERER, Baltimore, Md., in *Scientific American*.

CONTRIBUTED AND SELECTED

A METHOD FOR THE PREPARATION OF LARGE QUANTITIES OF VOLUMETRIC SOLUTIONS.

BY A. H. CLARK, B.SC.

For a number of years I have had to solve the problem of preparing large quantities of normal volumetric solutions of acids and alkali for students' use. The quantities range from five to ten gallons at a time, twenty to forty litres, and the question of how to prepare them in this large quantity and dilute them to exactly normal concentration was puzzling to say the least. Lately the scheme detailed below has been worked out and it seems to answer the purpose admirably.

The scheme consists of first preparing any quantity of a solution (exact volume unknown) of such a concentration that it is from one-tenth to one-fifth above normal, and then determining its factor by titration; second, diluting this solution with an accurately measured volume of water; third, withdrawing from this solution an accurately measured quantity and once more determining a factor; fourth, from the amount of water added at the second step, and from the factors determined at the first and the third steps, calculating the volume of water that is necessary to be added to make the entire lot exactly normal.

The reasoning, together with the necessary mathematics, is given below.

Let $V_1 =$ the original volume.
$V_2 =$ volume of water added at the second step.
$V_3 =$ volume of solution removed to determine the second factor.
$V_4 =$ volume after dilution and second standardization.
$V_5 =$ volume of finished solution when exactly normal.
$V_6 =$ volume of water necessary to be added to V_4 to make the finished solution exactly normal.

The various volumes may be in any unit, but litres or one hundred cubic centimetres will be found the most convenient.

Let $W_1 =$ original weight of active substance per unit volume.
$W_2 =$ weight per unit volume after the first dilution.
$W_3 =$ weight per unit volume of active substance necessary to make an exactly normal solution.
Let $F_1 =$ factor of the original undiluted solution.
$F_2 =$ factor of the solution after the first dilution.
$F_3 =$ factor of an exactly normal solution.

The value which we wish to know above all others is that of V_6, but first of all we must know the value of V_1. Obviously the product of the weight per unit volume into the original volume should be equal to the product of the weight per unit volume after the first dilution into the volume at that time, plus the same weight per unit volume into the volume withdrawn to make the second standardization. That is:

$W_1 V_1 = W_2 V_4 + W_2 V_3.$
$W_1 V_1 = W_2 (V_4 + V_3).$
But $V_4 = N_2 + V_1 - V_3.$
$W_1 V_1 = W_2 (V_1 + V_2 - V_3 + V_3).$
$W_1 V_1 = W_2 (V_1 + V_2).$
Now V_2 may easily be made unity.
Then $W_1 V_1 = W_2 (V_1 + 1).$

Solving this equation for V_1 we have:

FORMULA I.

$$V_1 = \frac{W_2}{W_1 - W_2}$$

The same formula might also be obtained in other ways.

Now, the weight per unit volume of any solution, times the total volume, divided by the weight per unit volume of the active substance contained in a normal solution, will give the volume of the finished solution if diluted to exactly normal. That is:

$$V_5 = \frac{(V_1 + V_2 - V_3) W_2}{W_3}$$

But $V_6 = V_5 - V_4$
And $V_4 = V_1 + V_2 - V_3$

$$\text{Then } V_6 = \frac{(V_1 + V_2 - V_3)\mathrm{W}_2}{W_3} - (V_1 + V_2 - V_3).$$

$$V_6 = \frac{(V_1 + V_2 - V_3) W_2 - (V_1 + V_2 - V_3) W_3.}{W_3}$$

Substituting the value of V_1 from Formula I and simplifying:

FORMULA II.

$$V_6 = \frac{\left(\frac{W_2}{W_1 - W_2} + V_2 - V_3\right)(W_2 - W_3)}{W_3}$$

We thus have under control all the values necessary for determining V_6, since W_1 and W_2 may be determined by experiment and W_3 will be known from theory, and V_2 and V_3 may be made anything we please.

Since the weight per unit volume of any solution is directly proportional to the factor of the solution we may substitute for the various weights the various factors determined by experiment. Thus we do away with the necessity of calculating the various weights. Our formula II then becomes:

FORMULA III.

$$V_6 = \frac{\left(\frac{F_2}{F_1 - F_2} + V_2 - V_3\right)(F_2 - F_3}{F_3}$$

Since the factor of an exactly normal solution is unity, F_3 is unity, and our formula III becomes:

FORMULA IV.

$$V_6 = \left(\frac{F_2}{F_1 - F_2} + V_2 - V_3\right)(F_2 - 1).$$

V_2 may be made unity, say one litre, and V_3 may be made one hundred cubic centimetres, or one-tenth unity, and the calculation is quite simple. For large volumes, twenty litres or more, these values for V_2 and V_3 are convenient. If the quantity of solution is less, say four to five litres, the formula may still further be simplified by making both V_2 and V_3 unity, and the unit volume one hundred cubic centimetres. In this way both V_2 and V_3 will cancel out of the formula and we have:

FORMULA V.

$$V_6 = \left(\frac{F_2}{F_1 - F_2}\right)(F_2 - 1).$$

The following examples are given to show what can be done by using these formulas. These figures are the final factors of various lots of normal sulphuric acid made as described and using formula IV to calculate V_6.

(1) 1.006. (2) 0.9967. (3) 0.9968. (4) 0.9983.

In these experiments ordinary 25 Cc. volume pipettes were used to measure the acid solutions, and a cylinder graduated to 1000 Cc. in 10 Cc. divisions for the water used in the dilutions. The results were obtained on lots of about twenty litres.

By using more refined methods of measurements one lot of about twenty litres finished with a factor of 1.0018.

On lots of about four litres and using Formula V to calculate V_6 results were obtained as follows, using volume pipettes for the measurements:

(1) 1.001. (2) 0.9985. (3) 0.9989.

If we consider the fact that a variation of 0.004 in the factor of a solution means a variation of only 0.1 Cc. on a volume of 25 Cc. used in standardization, these results are accurate enough for the control of all ordinary work of students. Indeed, I believe the method could be made sufficiently accurate for most purposes aside from very exacting scientific work.

The advantages of the scheme as compared with the usual method lie in the fact that:

First, any volume of a solution may be prepared in a vessel of any shape or size regardless of whether the vessel is filled or not, by means of two separate titrations, and the measurement of three relatively small volumes. Because of this, standard graduated flasks need not be employed, nor any device for holding the volume of water necessary to dilute to normal the original solution.

Second, the calculations are not cumbersome, even with arithmetic, and are very simple by means of logarithms, and in any event are more conveniently carried out than the dilution to exact volume which is necessary when proceeding in the usual way.

Third, the original concentration may be considerably above normal and may vary widely. It must, however, be far enough above normal so that the first dilution still leaves it above normal. These conditions may be easily attained by rough calculations. In these respects much less latitude is allowed when proceeding in the usual way.

Fourth, the time necessary to complete the whole operation is short. After a little experience from fifteen to thirty minutes is ample.

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THE DETECTION OF MINUTE QUANTITIES OF UNSATURATED HYDROCARBONS IN PETROLATUM OIL.*

BY C. H. BRIGGS AND W. L. IRWIN.

The recent discovery of the value of petrolatum oil as an intestinal lubricant has increased the consumption of this oil enormously. Because of the large doses used in this treatment the purity of the oil is important. It is claimed that unsaturated hydrocarbons are liable to be broken up in the body with the formation of poisonous products, hence, the presence of these compounds in petrolatum oil for internal use should be rigorously guarded against.

It is well known that commercial petrolatum oils before being purified contain considerable proportions of unsaturated hydrocarbons. These unsaturated compounds react readily with concentrated sulphuric acid, and the usual method for determining if an oil has been properly purified is to treat it with concentrated sulphuric acid and note the color formed.

The last British Pharmacopœia requires that when 3 mils of the oil are heated with an equal volume of sulphuric acid in a test-tube, placed in boiling water for ten minutes, and frequently shaken, the acid layer should not be darker than pale brown.

A sulphuric acid test for petrolatum oil is to be included in the U. S. P. IX.[1] The test as usually applied in this country requires that 5 mils of the oil be shaken at frequent intervals, during ten minutes, while warming on a water-bath, with 5 mils of sulphuric acid, in a glass-stoppered cylinder.

It has recently been proposed that a mixture of equal parts of nitric and sulphuric acids be used for this test. This mixed acid test has been given a great deal of publicity during the last year, and it has been claimed that it is a more delicate test for unsaturated hydrocarbons than the sulphuric acid test. The facts of the matter are that the mixed acid test can only be applied to oils containing hydrocarbons of the naphthene series and it must not be used on oils of the methane series.

This mixture of concentrated nitric and sulphuric acids is a very strong nitrating agent, and Zaloziecki and Frasch[2] have shown that it will nitrate hydrocarbons of the methane series which contain side chains, forming nitroparaffins having a yellow color. Now, these hydrocarbons having side chains are completely saturated and are not acted on by concentrated sulphuric acid alone. They are present to a small extent in all oils of the methane series and are perfectly harmless. All the oils produced in the eastern and central parts of the United States are of the methane series, and only those oils produced in California are of the naphthene series. Hence, the mixed acid test should only be used on California oils and is not applicable to oils obtained from other sections of this country.

It occurred to the writers that the application of the bromine test for unsaturated compounds to petrolatum oils for internal use would perhaps be a better and more reliable means of detecting these compounds.

The bromine absorption value has been used by McArthur[3] for determining the amount of unsaturated hydrocarbons in shale and lubricating oils. This method consists in allowing the oil to react with an excess of bromine in carbon disulphide under certain conditions, and determining the amount of bromine absorbed.

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* Presented before Pharmaceutical Section of American Chemical Society, April, 1916.

[1] JOURNAL A. PH. A., vol. iv, 994.

[2] Berichte 35, 390.

[3] J. Soc. Chem. Ind., 1888, 7, 65.

We attempted to apply this method to petrolatum oils for internal use, but the amount of unsaturated hydrocarbons in these oils is so small that traces of bromine absorbed by the carbon disulphide appeared to vitiate the results. It was found, however, that by using carbon tetrachloride in place of the carbon disulphide and making some other modifications to adapt the test to conditions, the bromine test gives reliable results for the detection of unsaturated hydrocarbons in petrolatum oils. Furthermore, the test seems to be quantitative and hence the amount of such unsaturated hydrocarbons can be estimated approximately.

The reagents required for the test are as follows:

1. Purified carbon tetrachloride: Add bromine to commercial carbon tetrachloride until the color remains permanent and allow to stand for three or four hours. Add potassium hydroxide in small pieces and allow to stand with occasional agitation until the carbon tetrachloride gives no test for bromine. Distil off the carbon tetrachloride, leaving a few pieces of the potassium hydroxide in the flask. Test distillate for absence of bromine.

2. $\frac{N}{500}$ bromine solution: Dissolve sufficient bromine in purified carbon tetrachloride to make an $\frac{N}{500}$ bromine solution approximately.

3. $\frac{N}{500}$ sodium thiosulphate solution.

4. Starch and potassium iodide solution for indicator: 5 grammes potassium iodide, 5 mils 2 percent starch solution, and 500 mils of distilled water.

To make the test, take 5 mils of oil in a 50 mil glass-stoppered cylinder, add 5 mils purified carbon tetrachloride and 5 mils of the $\frac{N}{500}$ bromine solution. Shake and allow to stand fifteen minutes in the dark. Now, add about 3 mils of starch-potassium iodide indicator and titrate with $\frac{N}{500}$ thiosulphate solution until the color is completely discharged from both layers of the mixture. It is important to shake vigorously after each addition of the thiosulphate solution.

A blank consisting of 5 mils of the $\frac{N}{500}$ bromine solution and 5 mils of the purified carbon tetrachloride solution is run at the same time. The difference in the amount of $\frac{N}{500}$ thiosulphate solution absorbed by the blank and by the sample is the amount of $\frac{N}{500}$ bromine absorbed by 5 mils of the oil.

It is important that the carbon tetrachloride be free from moisture and that the cylinders be perfectly dry.

In order to test out the leading brands of petrolatum oil on the market, ten samples were obtained from one of the largest drug stores in Detroit. These samples were assayed for unsaturated hydrocarbons by the bromine test as described above, and were tested by the sulphuric acid test, and also by the mixed acid test. These results are incorporated in the following table:

	Mils of $\frac{N}{500}$ bromine solution absorbed.	Relative position in bromine test.	Relative position in H_2SO_4 test.	Relative position in mixed acid test.	Relative position as to taste.
A	.5	1	2 O.K.	2	1
B	.6	2	3 O.K.	3	3
C	.7	3	1 O.K.	1 O.K.	2
D	.8	4	4 O.K.	6	9
E	.8	4	7	5	4
F	.8	4	8	8	8
G	1.2	7	6	7	7
H	2.2	8	5	4	6
I	2.3	9	9	8	5
J	19.0	10	10	10	10

It will be noted that nine samples absorbed from .5 to 2.3 mils of $\frac{N}{500}$ bromine and that sample J absorbed 19 mils of $\frac{N}{500}$ bromine. Sample J was a very poor grade of Russian oil. Six of the samples absorbed less than 1 mil of $\frac{N}{500}$ bromine for 5 mils of the oil and this would appear to be a satisfactory requirement for unsaturated hydrocarbons.

When tested by sulphuric acid test, the ten samples showed a wide variation in color and only four would meet the requirements of this test as usually applied.

The three oils which showed the least amount of unsaturated hydrocarbons by the bromine test were also the three best oils by the sulphuric acid test. There does not, however, appear to be a strict relation between the amount of unsaturated hydrocarbons in the oil and the color which is formed by the sulphuric acid test. This would indicate that there are other substances than unsaturated hydrocarbons that are reacted on by the sulphuric acid.

When tested by the mixed acid test, the samples also showed a wide variation in color and only one sample met the requirements of the test. As was to be expected, this sample was an oil of the naphthene series.

The taste of the different oils was also noted, but there did not seem to be any relation between the unsaturated hydrocarbons and the taste of the oil.

Because of the very small quantity of bromine absorbed by these oils, the writers have attempted to calculate approximately the amount of unsaturated hydrocarbons present. Assuming that the unsaturated hydrocarbons in the petrolatum oils have a composition of $C_{18}H_{36}$, which hydrocarbon would have approximately the correct boiling point, then 1 mil of $\frac{N}{500}$ bromine would be equivalent to ¼ milligramme of the unsaturated hydrocarbon. Five mils of the best petrolatum oils would therefore contain less than ¼ milligramme, or less than 0.005 percent, of unsaturated hydrocarbons.

It is inconceivable that this small quantity of unsaturated hydrocarbons in liquid petrolatum would have any injurious effect when the oil is taken internally.

Great credit is due American chemists and American manufacturers for the degree of perfection they have reached in the purification of American liquid petrolatums.

Chemical Laboratory, Parke, Davis & Co., Detroit, Mich., April 14, 1916.

ADSORPTION OF PEPSIN FROM AQUEOUS SOLUTION BY ALUMINA.

About 12.4 percent of the total pepsin present in aqueous solution is removed by digestion with alumina. This adsorbed pepsin cannot be recovered by repeated extraction of the alumina, to which it adheres, by means of warm water. The filtrate from the digestion with alumina, when again treated with that substance, fails to part with any more of its pepsin. Pepsin is stated to be partly crystalline. (These results seem to point to the fact that argillaceous filtering media should not be employed for brightening preparations of pepsin.)—M. A. Rakuzin and E. M. Braudo (*J. Russ. Phys. Chem. Soc.; Chem. Abstr.*, 1915, 9, 3071).

INVERSION OF CANE SUGAR IN SYRUPUS.*

(SECOND PAPER.)

BY JOSEPH L. MAYER.

In a paper on this subject read before the New York State Pharmaceutical Association, June, 1915 (JOURNAL A. PH. A., August, 1915, p. 945), I called attention to the fact that *syrupus* made by either cold percolation or heat contained practically no invert sugar, but that after standing, both syrups contained a large amount of reducing sugar; the sample made without heat containing more invert sugar than the other one. The samples were originally made January 28, 1915, and contained the following amounts of invert sugar:

Cold Process Syrup	0.174 percent invert sugar
Hot Process Syrup	0.138 percent invert sugar

The cane sugar from which they were made was tested the same day and contained 0.111 percent invert sugar, thus showing that practically no inversion took place in the manufacture of the samples.

The tabulated results of the tests, which were made bimonthly, showed that the percentage of invert sugar in both samples kept on increasing; the last date reported being June 3, 1916, at which time the cold process syrup contained 6.586 percent and the hot process syrup 5.751 percent.

Since that time I have tested the samples very frequently, the results being as follows:

	Cold process.	Hot process.
July 3, 1915	10.480 percent invert sugar	8.801 percent invert sugar
August 5, 1915	17.750 percent invert sugar	13.800 percent invert sugar
September 23, 1915	27.111 percent invert sugar	19.597 percent invert sugar
October 4, 1915	28.320 percent invert sugar	20.671 percent invert sugar
November 1, 1915	31.034 percent invert sugar	21.492 percent invert sugar
December 6, 1915	32.684 percent invert sugar	23.421 percent invert sugar
June 3, 1916	41.097 percent invert sugar	31.565 percent invert sugar

The method of analysis was that employed in connection with the results reported in the former paper—Munson and Walker's "Uniform Method for Determining Reducing Sugars in General" (U. S. Dept. of Agr., Bur. of Chem., Bull. 107, rev. page 241 and 242).

These remarkable results prove, as those reported last year did, that samples of *syrupus*, while practically free from invert sugar when made, become inverted upon standing; the inversion being greater in the cold process syrup than in that in which heat is employed in the manufacture, and that reporting the presence of commercial glucose as an adulterant of *syrupus* merely on the presence of a large amount of reducing sugar is an unsafe procedure.

I am still at work on the subject and hope in my next paper to present further results of the investigation.

RESEARCH AND ANALYTICAL DEPARTMENT, RIKER LABORATORIES.

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* Read before the New York State Pharmaceutical Association, June 22, 1916.

LABORATORY NOTES.*

BY CHARLES E. VANDERKLEED AND GEORGE E. ÉWE.

NOTE ON THE ASSAY OF LOBELIA PREPARATIONS.

As the alkaloid lobeline found in lobelia is volatile, it is customary in the assay of this drug to obtain the alkaloid by macerating with a mixture of alcohol, ether, and ammonia water, shaking out an aliquot part with 2 percent sulphuric acid, making the acid extractions alkaline with sodium carbonate and shaking out with chloroform. The chloroform extractions are placed in a tared crystallizing dish containing 30 Cc. of ether saturated with hydrochloric acid gas. The whole mixture is then evaporated on a steam-bath and dried in an air-bath to constant weight. The residue of alkaloidal hydrochloride is then dissolved in water and titrated with decinormal silver nitrate. Difficulties were experienced in attempting to titrate the hydrochloride directly with silver nitrate, using potassium chromate as indicator. It was found, however, that quite concordant results with excellent end points can be obtained by using the Volhard method of titration.

NECESSITY FOR TREATING ALKALOIDAL RESIDUES WITH ETHER BEFORE DRYING TO CONSTANT WEIGHT.

It has long been recognized as desirable to treat all alkaloidal residues obtained by chloroform with ether before attempting to dry to constant weight, owing to the tenacity with which such residues retain chloroform.

A recent illustration of this fact was shown in an attempt to assay tablets of apomorphine hydrochloride $^1/_{10}$ grain. The method employed was to dissolve 30 tablets in 10 Cc. of water, render alkaline with sodium bicarbonate and shake out with chloroform. When the chloroform extractions were evaporated and dried to constant weight at 80° C. an excess of about 17 percent of alkaloidal salt was invariably indicated. An investigation of the purity of the materials used and of the actual quantities used in the manufacture having shown no error, attention was again directed to the assay process with a result that when the alkaloidal residue was treated with ether prior to drying to constant weight at 80° C., a concordant result of 99 percent of the required amount of apomorphine hydrochloride was obtained.

NOTES ON THE ASSAY OF FORMALDEHYDE.

The U.S.P. in the assay of formaldehyde directs to allow the formaldehyde, hydrogen peroxide, and normal alkali to stand for thirty minutes after the foaming has subsided.

This has often been proven to be too short a time for complete oxidation of the formaldehyde to formic acid. A far better plan, and one which we have adopted in this laboratory, is to allow the mixture to stand with frequent shaking until no more gas bubbles are noticed on shaking, which occurs after an hour or two. This longer standing cannot be objected to on the score of any methyl alcohol, which is usually present, being oxidized to formaldehyde and then to formic acid. In experiments using 0.5 Cc. of methyl alcohol, which is far in excess of that likely to be present, practically no standard alkali was used up even after forty-eight hours. Two lots of commercial formaldehyde solution which were examined recently for methyl alcohol contained 6.9 percent and 9.5 percent respectively.

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* Abstracted from the Reports of the H. K. Mulford Company Chemical Society. Read before Pennsylvania Pharmaceutical Association, June 22, 1916.

There is some objection to longer standing, however, when acetanilide is present in the hydrogen peroxide used, because the acetanilide is gradually saponified and uses up some alkali. Several blank experiments in which the standard alkali and hydrogen peroxide contained $^3/_{16}$ grain of acetanilide per fluidounce were let stand for an hour and showed no loss of alkali, but after about forty-eight hours 0.4 Cc. normal alkali was used up. This is not a serious objection, as in the time required by the improved method the loss of alkali due to reaction with the acetanilide would be negligible. Furthermore, about 50 Cc. normal alkali is used in the assay and 0.4 Cc. is less than 1 percent of 50 Cc., so that the maximum loss of alkali and consequent gain of formaldehyde would be about 1 percent and fairly within the limits of experimental error common to a conditional method of this character.

If it is desired to completely overcome the slight error introduced by long standing a blank correction can be employed.

THE TIME REQUIRED BY RENNIN FOR COAGULATION OF MILK IS INVERSELY PROPORTIONAL TO THE AMOUNT OF RENNIN EMPLOYED.

In our present method of assay we determine the coagulation power of rennin at a fixed time for coagulation of seven and one-half minutes. It often happens that in a series of determinations on a sample of rennin of unknown strength none of the tests will show coagulation at exactly the expiration of seven and one-half minutes. It is a time consuming operation to repeat experiments until the coagulation is made to take place in exactly seven and one-half minutes. A large number of experiments were run to determine whether or not the coagulation can be calculated to a seven and one-half minute basis by inverse proportion when the actual coagulation time has been found to differ from seven and one-half minutes. As a result of these experiments it has been determined that it is indeed possible from weight of rennin used, weight of milk employed and time required for coagulation, to calculate the coagulating power by inverse proportion to a seven and one-half minute basis with a sufficient degree of accuracy for all practical purposes. As an illustration, Experiment No. 7 on rennin sample No. 8 is quoted as follows:

Time for coagulation.	Coagulating power on seven and one-half minute basis.
5½ minutes	1–12,000
7 minutes	1–13,400
7½ minutes	1–12,500
8½ minutes	1–13,200
9½ minutes	1–14,800
10 minutes	1–12,500

The average of these six different times for coagulation calculates to 1 : 13,000 coagulation power on a seven and one-half minute basis, which result is very close to the 12,500 obtained when the time of coagulation was exactly seven and one-half minutes.

Our regular method for the assay of rennin has been modified by the adoption of the following appended note:

When coagulation does not occur in exactly seven and one-half minutes calculation can be made by inverse proportion to a seven and one-half minute basis. For example, if 2½ Cc. of the prescribed rennin solution coagulates the milk in six minutes instead of seven and one-half minutes, then $6:30{,}000::7\frac{1}{2}:x$ ($x = 37{,}500$). Likewise, if 2½ Cc. of the rennin solution coagulates the milk in eight and one-half minutes instead of seven and one-half, then the proportion becomes $8\frac{1}{2}:30{,}000::7\frac{1}{2}:x$ ($x = 26{,}470$).

The above calculation can be resorted to if the time of coagulation falls anywhere between five minutes and nineteen minutes.

THE DETERMINATION OF POTASSIUM IN COLLOIDAL SILVER PREPARATIONS CONTAINING POTASSIUM.

Some colloidal silver preparations contain potassium as an ingredient of the protective colloid in the preparation. The potassium can be determined as follows: Ignite a weighed sample of the preparation at a just barely red heat until completely charred and no more smoke comes off. Treat the ignited residue with hot nitric acid until the silver is dissolved. Dilute with water, filter, add HCl to the filtrate to precipitate the silver as chloride, allow the AgCl to coagulate, filter, evaporate the filtrate to dryness, ignite very gently, cool. Dissolve in water, filter if necessary, add platinic chloride in excess and evaporate to small bulk but not to dryness. Add about 60 Cc. of 80 percent alcohol, allow to stand several hours, filter off the potassium platinic chloride on a Gooch crucible which has been dried at 130° C. and weighed, and wash with 80 percent alcohol. Dry the Gooch and potassium platinic chloride at 130° C. and weigh. The platinic chloride is shown to be in excess by its presence in the filtrate from the potassium platinic chloride. If the platinic chloride was not in excess, the filtrate must be evaporated until free from alcohol, more platinic chloride added and the treatment with 80 percent alcohol repeated.

$$K_2PtCl_6 \times 0.19398 = K_2O.$$

NOTES ON SOME U.S.P. REQUIREMENTS FOR COLCHICINE.

The U.S.P. requires a melting-point of 142.5° C. A fixed temperature like this is impracticable, as slight decomposition occurs around the melting-point. This has been recognized by the U.S.P. Revision Committee and the U.S.P. IX will state that colchicine melts between 142° and 146° C. The melting-point of colchicine is difficult to observe because the melted colchicine does not form a meniscus in the melting-point tube, as occurs with most compounds, but forms globules or wets the inside of the tube. If the point at which a meniscus is formed is taken as the melting-point, a much higher temperature will be obtained as the melting-point. For instance, a sample of colchicine formed globules at 144° C. but did not form a meniscus in the tube until a temperature of 160° C. was obtained.

Most of the colchicine on the market contains chloroform of crystallization. The present U.S.P. does not recognize this fact and offers no requirements regarding it. The U.S.P. IX will require that colchicine lose not more than 5 percent in the heating test. This will prevent excessive chloroform in colchicine. It is probably not practical to prohibit chloroform entirely, as it is exceedingly difficult to completely drive off the chloroform. A sample of colchicine containing chloroform of crystallization which lost 22 percent of its weight when heated for eight hours at 100° C. still contained enough chloroform to give the phenyl-isocyanide reaction. The phenyl-isocyanide reaction, of course, is exceedingly delicate, but nevertheless this experiment illustrated the difficulty of getting rid of all the chloroform.

A temperature of 100° C. does not appreciably darken the color of colchicine, so that there is no excuse for excessive quantities of chloroform in this product, as simple heating will drive off the chloroform to a satisfactory degree. Colchicine is hydroscopic and the loss on heating requirements of the U.S.P. IX will also prevent excessive moisture in this product. The present U.S.P. hydrochloric acid-ferric chloride-chloroform identification test is unsatisfactory in respect that it requires the mixture to be heated only to boiling. With this procedure a ruby-red chloroform layer may or may not be obtained. If, however, the boiling is continued for one to two minutes, guarding against excessive evaporation, a good reaction is always obtained. With the many samples of colchicine which we have tested, greenish chloroform layers were almost always obtained if the mixtures were only brought to boiling, while if boiled from one to two minutes ruby-red or sometimes brownish tinted ruby-red chloroform layers were obtained.

"CHEEP GAS" TABLETS.

These tablets are sold on the market in Philadelphia for adding to gasoline fuel, with the claim "More mileage—no carbon. One of these tablets to each gallon of gasoline renders combustion complete, keeps cylinders clean, increases the mileage ⅓ to ½." On examination they were found to be grayish, crystalline, mottled tablets with the odor of naphthalene and citronella. Each tablet weighed 8¼ grains and when ground melted at 79½°–80½° C. and boiled at 217° C. As naphthalene melts at 80° C. and boils at 218° C. the tablets are undoubtedly merely naphthalene scented with oil of citronella.

WILFARTH MODIFICATION OF THE KJELDAHL METHOD APPLIED TO PEPTONIZED BEEF, BEEF EXTRACT, AND BEEF, IRON AND WINE FOR ASSAY FOR PROTEIN.

The method adopted is as follows:

Two to three Gms. of the sample (in the case of beef, iron and wine, the residue from 50 Cc.) is placed in the digestion flask, 1 Gm. metallic mercury is added and 25 Cc. of a solution of 200 Gms. of phosphorus pentoxide in 1000 Cc. of concentrated sulphuric acid. After the liquid becomes colorless transfer the acid to the distillation flask with 200–400 Cc. of water. Precipitate the mercury by addition of 25 Cc. of a solution of 40 Gms. of potassium sulphide in 1000 Cc. of water. The acid is neutralized as usual with saturated sodium hydroxide solution. After the addition of a few Gms. of zinc the ammonia is distilled into seminormal acid and the excess of acid is titrated back.

This method is preferable for the determination of beef, iron and wine, beef extract, and peptonized beef, as the time of digestion is reduced from the six or seven hours required by the Gunning-Kjeldahl method to about one or one and one-half hours by the Wilfarth method.

Some comparative results obtained by the two methods are as follows:

	Gunning-Kjeldahl.	Wilfarth.
Sample peptonized beef	62.54 percent	62.10 percent
Sample beef, iron and wine	1.17 percent	1.16 percent
Sample beef extract	45.17 percent	45.10 percent

THE CHEMICAL EXAMINATION OF PYROLIGNEOUS ACID.

The most important constituents of pyroligneous acid, from a commercial stand-point, are acetic acid, acetone, methyl alcohol and phenols. The acetic acid can be determined by direct titration with standard potassium hydroxide solution, using a large quantity of phenolphthalein test solution as indicator and diluting the sample largely, to overcome the difficulty of observing the end point occasioned by the darkening of the solution when nearing the neutral point.

Acetone can be determined by forming iodoform and shaking it out with ether. The ether is evaporated rapidly and the iodoform weighed immediately. Rather large samples should be used because of the difficulty of handling iodoform without loss by volatilization. The acetone can also be determined by the following method:

Sample 2 Cc., dilute with 40 Cc. water and add 50 Cc. of a mercury reagent made by dissolving 5 Gms. yellow oxide mercury in a warm mixture of 20 Cc. of concentrated H_2SO_4 and 100 Cc. of water. On standing on a water-bath the acetone is precipitated possibly as $2H_2SO_4 . 3HgO. CO(CH_3)_2$; however, this precipitate is variable and in all cases a check should be run on a facsimile mixture of approximately the same composition. The precipitate is collected on a tared filter and washed with cold water using suction. The filtrate should be treated with more reagent. The precipitate is then dried at 100–110° C. and weighed. From the weight a factor is calculated. This factor is variable according to the composition of the sample, etc. In one sample the factor was 0.052 and in another sample of different composition it was 0.074. The iodoform and mercury methods check up together fairly well. The methyl alcohol can be determined by the following method:

Seven and five-tenths Cc. are treated with potassium carbonate and iodine until the iodoform is completely precipitated. The mixture is made up to definite volume and a filtered aliquot part is placed in a distilling flask. Some sodium thiosulphate and sodium hydroxide is added and the methyl alcohol distilled off. The specific gravity of the distillate is taken at 15.56 percent and compared with the methyl alcohol tables in Van Nostrand's Chemical Annual, 1909. A facsimile preparation of known methyl alcohol content yielded 96.1 percent of its methyl alcohol by this method.

The phenols can be determined by shaking out 100 Cc. with benzol, after adding 5 Cc. H_2SO_4. The benzol solution of phenols is then shaken with a measured volume of 20 percent NaOH solution in a phenol measuring bulb and the increase in the NaOH layer calculated as phenols, 1 Cc. to the gramme.

NOTE ON OPIUM ASSAY.

The impression is quite prevalent that if in an opium assay the morphine is allowed to stand for crystallization for a longer time than the sixteen hours prescribed by the U. S. Pharmacopœia, the morphine will be less pure and more difficult to filter off and wash. In a series of comparative tests of this point the following data were obtained:

Sample.	Time for crystallization.	Insol. in lime water.	Assay.	Remarks.
Gum opium	16 hours	0.094 Gm.	21.03 percent	Not difficult to filter
	44 hours	0.088 Gm.	20.43 percent	Not difficult to filter
Weak solid extract ..	16 hours	0.106 Gm.	6.36 percent	Not difficult to filter
	66 hours	0.128 Gm.	6.96 percent	Not difficult to filter
U. S. Pharmacopœia Solid extract	18 hours	None	17.80 percent	Not difficult to filter
	59 hours	None	18.07 percent	Not difficult to filter
Fluid concentrated	16 hours	None	3.33 percent	Not difficult to filter
	66 hours	None	3.33 percent	Not difficult to filter

It is apparent, therefore, that morphine allowed to stand more than sixteen hours for crystallization is not necessarily less pure or more difficult to wash on the average than morphine which is allowed to stand only the sixteen hours prescribed.

POTASSIUM ARSENITE.

It has often been pointed out that chemicals which are not official and for which no definite authoritative standards have been provided are liable to vary considerably in composition. This point is well illustrated by the potassium arsenite on the market.

Merck's Index gives the formula $KAsO_2$. H_3AsO_3 for potassium arsenite. Until recently we have in our laboratory accepted this formula as the basis on which the strength of potassium arsenite so-called should be based. Recently, however, an American manufacturer has placed on the market a potassium arsenite for which the formula $KAsO_2$ is claimed. Examinations of several lots of this product have shown it to assay 99.2 percent $KAsO_2$ with 0.21 percent water and a trace of carbonate. The importance of making such products official and thereby holding them to a definite standard, even though not used in enormous quantities, is apparent.

NOTE ON THE MEASUREMENT OF UNDISSOLVED ALBUMEN IN THE ASSAY OF PEPSIN.

In the official pepsin assay one-half hour is prescribed for the settling of the undissolved albumen. That this prescribed time is a minimum and not necessarily a maximum is shown by the following experiment:

Experiment number.	One-half hour.	Fifteen hours (over night).
1	50 Cc.	49 Cc.
2	48 Cc.	47 Cc.
3	40 Cc.	40 Cc.
5	37 Cc.	37 Cc.
7	1 Cc.	2 Cc.
9	1 Cc.	1 Cc.
10	Less than 1	Less than 1
XX	Less than 1	Less than 1
XXI	Less than 1	Less than 1

This is of importance to the analyst, as it shows that it is not necessary that the reading of the undissolved albumen should be made exactly one-half hour after the digestion is made. Standing over night apparently yields identical results and thus in necessary cases it allows a pepsin assay to be run in a working time which is too short to allow the undissolved albumen to settle one-half hour.

SAW PALMETTO COUGH PREPARATIONS.

Saw palmetto owes its virtue chiefly to pectoral and sedative activity and therefore finds a place in the treatment of coughs. The active constituents of saw palmetto are oleoresinous in nature and are represented by the oleoresin or alcoholic extract of the drug. Oleoresin saw palmetto can be dispensed in soluble elastic capsules as such, or in combination with terebene, oil sandalwood, creosote, eucalyptol, olive oil, etc. A cordial could be worked out along the lines of the elixir described below.

An elixir of saw palmetto and terpin hydrate can be prepared as follows: Dissolve terpin hydrate 1.75 Gm. in fluidextract saw palmetto 40 Cc. and alcohol 10 Cc.

Add tincture sweet orange peel 1 Cc., solution saccharin 0.2 Cc., glycerin 40 Cc. and syrup 100 Cc. This elixir contains 8 grains terpin hydrate and 184 grains saw palmetto per fluidounce. This elixir may find its use in supplying the apparent need for a terpin hydrate elixir with sedative properties and without "dope." Saw palmetto oleoresin or alcohol-extractive, which is a clear green oily liquid, could be included as an ingredient of a cod liver emulsion, although the green color might be objectionable. The alcohol-extractive of saw palmetto is apparently soluble enough in glycerin to admit of the preparation of a glycerite either by percolation or maceration or by saturating glycerin with the alcohol-extractive of the drug.

Saw palmetto is probably not adaptable to tablets, lozenges or pastilles, as it is oily and has a large dosage.

A clear simple syrup of saw palmetto can be prepared as follows:

Saw palmetto 15 Gms. (or less), exhaust with alcohol. Recover alcohol. Add 15 Cc. glycerin, warm and stir for a few hours. Add 70 Gms. sugar and then water q.s. 100 Cc., warming a little to dissolve sugar.

A complex syrup can be prepared by incorporating the alcohol-extractive from 15 grains saw palmetto in 1 fluidounce of syrup white pine compound.

WOOL-FAT SUBSTITUTES.

In nearly all the European pharmaceutical papers, especially those of Sweden, Switzerland, and Holland, recipes are published for substances which can be used in the place of wool-fat, which is very scarce in all the countries that were in the habit of obtaining it from Germany. The stocks in Germany itself appear to be exhausted now. The "Pharm. Zeitung" recommends as a wool-fat substitute a mixture of 3 percent of stearinic anilide and 97 percent of vaseline (fetron). It is also proposed to make use of Chinese wood-oil for this purpose. According to a German patent Chinese wood-oil can be converted into a solid fat by heating it to 300° C. for a short time. Three parts of this solid fat dissolved in 7 parts of ordinary liquid Chinese wood-oil by warming and then adding 3 parts of wax gives a product which is said to have exactly the same physical properties as lanoline. Professor P. van der Wielen, in dealing with the matter in the "Pharmaceutisch Weekblad," confesses that there is no really good substitute for wool-fat. Of many combinations that have been tried, he recommends as one of the best substitutes a mixture of 20 parts of white beeswax and 80 parts of fresh linseed oil, which absorbs about 170 parts of water. Other mixtures which answer the purpose fairly well are the folowing: (1) Linseed oil, 20 parts; white vaseline, 20 parts; and spermaceti, 5 parts. This absorbs about 100 percent of water. (2) Yellow beeswax, 10 parts; wool-fat, 25 parts; vaseline, 45 parts; water, 25 parts. (3) Yellow beeswax, 15 parts; yellow vaseline, 60 parts; and water, 25 parts. The Swedish pharmaceutical paper, "Svenk. Farm. Tidskr.," publishes a recipe for "Cenolinum anhydricum," which consists of white vaseline 90 parts, cetyl alcohol 3 to 5 parts, and wool-fat 10 parts. Cenolinum is a mixture of equal parts of cenolinum anhydricum and water. According to Professorl van der Wielen a substitute of the same properties is obtained without the cetyl alcohol. Another recommendation is for a substance called "Cerolanum anhydricum," consisting of yellow beeswax 7 parts, wool-fat 15 parts, and white American vaseline 78 parts. Cerolanum is a mixture of 70 parts of cerolanum anhydricum and 30 parts of water. In the "Schweiz. Apoth. Zeitung" a correspondent prefers a mixture of yellow beeswax 3 parts, solid paraffin 7 parts, and yellow vaseline 90 parts.—*Chemist and Druggist.*

THE HARRISON NARCOTIC ACT.*

BY EPHRAIM LEDERER.

The Harrison Narcotic Law, which became effective March 1, 1915, has now been in process of administration for a period of fifteen months. The results accomplished by the Act are much more weighty than will appear from any record of prosecutions brought by the Internal Revenue Department or from the number of convictions obtained in the United States District Courts.

It is well understood that the Act, whilst intended to be, primarily, a revenue measure, did have a distinct moral purpose, and the Department has endeavored from the outset to bear this fact in mind in the administration of the law.

Under the Internal Revenue system the Commissioner of Internal Revenue is usually empowered to adopt the necessary regulations to carry an act of Congress into effect. This course is determined by the circumstances of the case, because it would be impossible for Congress to foresee all the various questions of administration which would enter into the enforcement of a revenue law. These questions usually develop in the process of enforcement, and the regulations are designed to carry out the letter and spirit of the law in accordance with the intentions of the legislature at the time of the enactment. Under the provisions usually accompanying such statutes, these regulations, when made, have the force and effect of law. This applies to the Harrison Narcotic Act, so that a regulation, once made and issued, by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, in conformity with the law, is as binding as the Act itself.

The recent decision of the Supreme Court of the United States, in the case of Jin Fuey Moy, has excited widespread attention because the subject with which it deals relates to one phase of the law in which the public is assumed to have a larger direct interest than in any other aspect. This is mainly due to the fact that the newspaper press has necessarily given more attention to the police features associated with the enforcement of the Act than to the regular and systematic carrying out of its purposes, which goes on from day to day under the supervision of the Internal Revenue Force and with the willing aid and coöperation of the vast majority of persons directly affected by the Act, to wit: physicians, dentists, veterinarians and druggists.

A great deal has been said about the tendency of those engaged in these honorable occupations to violate the law. I am happy to say our experience in this district has shown that there is a general and sincere coöperation on the part of all, with the exception of a comparatively small number, in the enforcement of the law and a fine spirit of compliance with the intent of Congress in passing the Act.

The problem with which the Harrison Narcotic Law undertakes to deal is not principally a so-called "tenderloin" problem. That feature of it necessarily figures most prominently in the newspapers, but the regulative features connected with the Act are aimed at evils which ramify throughout every section of the country, and they are designed to correct conditions resulting from the use of narcotic drugs by people who have never come in contact with the so-called "tenderloin" influence, and are merely victims of habits, very frequently innocently contracted, and which, through the inherent weakness of human nature, they have not been able to throw off.

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*The JOURNAL is indebted for this interesting contribution to Mr. Ephraim Lederer, Collector of Internal Revenue of the First District of Pennsylvania.

The Supreme Court, in the Jin Fuey Moy case, has decided that a mere user does not come within Section 8 of the Act, which reads:

> That it shall be unlawful for any person not registered under the provisions of this Act, and who has not paid the special tax provided for by this Act, to have in his possession or under his control any of the aforesaid drugs; and such possession or control shall be presumptive evidence of a violation of this section, and also of a violation of the provisions of Section 1 of this Act. . . . .

In the decision in question, the Supreme Court says:

> We conclude that "any person not registered" in Section 8 cannot be taken to mean any person in the United States, but must be taken to refer to the class with which the statute undertakes to deal, the persons who are required to register by Section 1. It is true that the exemption of possession of drugs prescribed in good faith by a physician is a powerful argument taken by itself for a broader meaning. But every question of construction is unique, and an argument that would prevail in any one case may be inadequate in another. This exemption stands alongside of one that saves employees of registered persons as do Sections 1 and 4, and nurses under the supervision of a physician, &c., as does Section 4, and is so far vague that it may have had in mind other persons carrying out a doctor's orders rather than the patient's. The general purpose seems to be to apply to possession exemptions similar to those applied to registration. Even if for a moment the scope and intent of the Act were lost sight of, the proviso is not enough tor overcome the dominant considerations that prevail in our mind.

The Court in passing on the constitutionality of the Act, which it distinctly affirmed, said:

> A statute must be construed, if fairly possible, so as to avoid not only the conclusion that it is unconstitutional, but also grave doubts upon that score. *United States* v. *Delaware & Hudson Co.,* 213 U. S. 366, 408. If we could know judicially that no opium is produced in the United States the difficulties in this case would be less, but we hardly are warranted in that assumption when the Act itself purports to deal with those who produce it. In Section 1, Congress, at all events, contemplated production in the United States and therefore the Act must be construed on the hypothesis that it takes place. If opium is produced in any of the States obviously the gravest question of power would be raised by an attempt of Congress to make possession of such opium a crime.

If the Supreme Court had found that mere possession of opium, or the other drugs mentioned in the Act, were a crime, it might have decided the Act unconstitutional.

The difficulties in the way have been fully recognized by those in charge of the administration of the law, just as they were by Congress when it passed the Act. Under the constitution the Federal Government has no general police power, but only such powers of that nature as are incident to the execution of the laws properly enacted under the constitution.

For this reason the several States could much more readily deal with offences committed by users of the drugs who are habitual addicts, than the Federal Government under its limited powers, but unfortunately it is extremely difficult to secure proper legislation in quite a number of the States. Under these circumstances legislation enacted by Congress, applying as it does to all sections of the Union, is much more speedily put into effect, if that body can be induced to adopt the necessary legislation that comes within its constitutional power. In passing the Harrison Act, Congress endeavored to supply a law which was needed by the entire country. Whilst the decision of the Supreme Court has undoubtedly impaired the usefulness of the law, it is quite within the bounds of possibility that Congress may be able to amend it so as to meet the objections of the Supreme Court and at the same time provide an entirely effective check on the great evil which the Harrison Act was designed to cure.

It is extremely difficult to prove an actual sale by illicit dealers who operate on a large scale, but do not sell directly to the addict. The possession of a large quantity of narcotic drugs, far beyond the legitimate requirements of a patient, would appear to be a conclusive presumption in fact, and therefore in law, that the possessor is a dealer.

It will be noted that the action of the Court in this case distinctly affirms the constitutionality of the Act, which was assailed on the ground that it was a police measure in the guise of a revenue measure. That feature of the decision is bound to prove, in the long run, more important than the one which has attracted most public attention.

It has been seriously questioned whether the arrest of a mere user of the narcotic drugs coming under the ban of the Harrison Act, and his imprisonment on the charge of having one of the proscribed drugs in his possession, is the best way of dealing with cases of that particular description.

In an essay on " Drug Addiction " by Drs. Joseph McIver and George E. Price, which contains an analysis of 147 cases in the Philadelphia General Hospital, the statement is made:

> All drug addicts should be placed where they can be detained until it is considered safe by the physician in charge for them to leave. An institution for the treatment of these cases should preferably be located in the country or suburbs and surrounded by ample grounds.

It is self-evident that imprisonment is not the kind of detention that is necessary in the case of mere users, to secure the results desired, and that institutions maintained by the State or Municipality for the purpose of effecting a complete and permanent cure are the only instruments which can meet the situation.

It is equally evident that the benefit which might be derived from such institutions can only be secured by the enactment of proper laws by the State, since the Federal Government has no jurisdiction, under the constitution, in matters of that kind. So far as the administration of the law in its general aspects is concerned, it can be said that a large number of physicians have conveyed to the Department the assurance that the Act has had the effect of making most physicians much more careful in prescribing habit-forming drugs as ingredients of the prescriptions which they give to their patients. The conclusions of Drs. McIver and Price in the article mentioned, as to the general effect of these drugs, are as follows:

> While the medical profession has had much to do with the formation of the morphine habit, and in former years with the development of the cocaine habit, it has little or nothing to do with the remarkable development and spread of the cocaine, and especially the heroine habit of the last few years. Farr has drawn a similar conclusion.
>
> Degeneracy, as shown by actual signs of development arrest, is present in a large proportion of cases of drug addiction. The majority of narcotic drug habitues are not also addicted to the excessive use of alcohol.
>
> Heroine is not as deleterious in its effects as morphine, and can be much more readily withdrawn.

I think it can fairly be said as a result of my observation of the administration of the Act in this district that the greater care exercised by physicians and druggists, as required by the terms of the Act, has been a distinct public benefit, and this, without regard to other benefits which have resulted from the enforcement of the law, would justify its enactment.

During the first registration period under the law, ending June 30, 1915, the total number of persons registered in the First District of Pennsylvania was 7489, whilst the registrations in the four districts which are located in the State of Pennsylvania was 17,771. This number was exceeded only by one State—New York—which had a total registration of 20,036. The registrations in the First District of Pennsylvania for the current year have been somewhat larger.

The enactment of the law is fully justified and the slight amount of trouble and inconvenience caused by its administration should be cheerfully undergone, for the sake of the general welfare, by those to whom the Act applies.

HOW TO USE THE METRIC SYSTEM.*

BY J. W. ENGLAND.

It sounds trite and commonplace to say it, but the way to use the metric system of weights and measures is to *think in terms of the metric system.* Nothing can be more confusing than to use equivalents of the older system of weights and measures, and nothing has done more to handicap the introduction of the metric system than such use. The only right procedure is to *think* in metric units. And when this is done, the system becomes surprisingly simple in operation.

The metric system has come and come to stay in this country and in time it will be the only system used; probably in a much shorter time than many of us realize. The metric system was legalized by Congress in 1866. Its weights are used in our coinage. Metric units are the legal units of electrical measure in the United States. The use of the metric system is obligatory in the medical work of the U. S. Navy and War Departments and U. S. Public Health Service, and in Porto Rico and the Philippine Islands; and it is in universal use by analytical chemists and scientists generally.

The European War is demoralizing the export trade of foreign countries. The system of weights and measures most largely used in such trade is the metric. To-day is America's golden opportunity, commercially. Never before in the history of the world has any country ever had such commercial possibilities as this country has for foreign trade. The Government is fully alive to the situation and is doing everything it can to induce manufacturers to use the metric system in the shipment of goods to foreign countries.

Recently, there has been issued an exceedingly practical Senate Document (No. 241), entitled "Report on the Use of the Metric System in Export Trade," by S. W. Stratton, Director of the Bureau of Standards, Washington, D. C. If the metric system becomes the accepted system of U. S. manufacturers for export trade, it will be but a short time until it will be used for goods that are not to be exported, because manufacturers will not want to use two standards—one for export and another for home trade.

The forthcoming editions of our official legal standards—the U.S.P. IX and the N.F. IV, both of which will become official as of September 1, 1916—will use *only* the metric system of weights and measures. The U.S.P. VIII uses the metric system only. The N.F. III uses the metric system, but gives *relative* equivalents in the apothecaries system, as do, also, many books of reference and text-books. The use of relative equivalents has led to errors by those who assumed that the equivalents given were proportional and interchangeable with the metric units, and they were not. This procedure has undoubtedly retarded the adoption or even the learning of the metric system by pharmacists in a practical manner, and the Committee on National Formulary has very wisely decided to eliminate this feature in the forthcoming edition of the book.

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* Read before the annual meeting of the Pennsylvania Pharmaceutical Association, June 22, 1916.

It would certainly seem that the time has come for the pharmacists of this country to decide to use the metric system in the manufacture of pharmaceutical preparations. There is nothing inherently difficult about this. But there is a right way of doing it and a wrong way. The wrong way is to use equivalents of the older weights and measures, and the right way is to use the metric weights and measures, and it is along this line that the following suggestions are offered:

In the first place, while the use of equivalents is to be unreservedly condemned, it is essential that the users of the metric system shall have an intelligent conception of the *approximate* equivalents of metric weights and measures in apothecaries weights and measures so that they shall clearly understand relative values; however, this is very different from using the equivalents themselves.

The following table will serve for the purpose of comparison:

APPROXIMATE WEIGHTS.

1 milligramme = $^{1}/_{65}$ grain.
1 centigramme = ⅙ grain.
1 decigramme = 1½ grains.
1 gramme = 15 grains.

APPROXIMATE VOLUMES.

1 millilitre or mil (or Cc.) = 15 minims.
1 litre = 2.1 pints or 34 fluidounces.

The term mil will be used in the U. S. P. IX in place of the Cc. or cubic centimetre of the U. S. P. VIII, the Bureau of Standards of Washington, D. C., having found that there was an error in the original measurement of the Cc. The error is practically negligible,[1] but the Committee on Revision wished to be as exact as is humanly possible, and also wished to follow the example of the British Pharmacopœia in the use of the term. Hence, the adoption of the newer and more euphonious term—mil.

APPROXIMATE LENGTHS.

1 millimetre = $^{1}/_{25}$ inch.
1 centimetre = $^{4}/_{10}$ inch.
1 decimetre = 4 inches.
1 metre = 40 inches.

The figures given are not exact equivalents, but they are sufficiently exact for understanding relative values. The exact metric equivalents carried out to the ultimate decimal point can be found in Part II of U. S. P. IX.

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[1] According to the Bureau of Standards, U. S. Government (Circular 47, Bureau of Standards, Department of Commerce, page 12), the term "cubic centimetre" as used in chemical work is a misnomer, since the unit actually used is the "millilitre," which has a slightly larger volume. The difference is the 27 millionth (0.000027) of a Cc.

An excellent conception of the relative values of metric weights and volumes in comparison with the apothecaries weights and volumes may be had by studying the doses given in the U. S. P. IX and N. F. IV.

DOMESTIC VOLUMES.

4 mils = 1 teaspoonful.
8 mils = 1 dessertspoonful.
15 mils = 1 tablespoonful.

It is useful to remember, also, that, practically, there are 28 (28.3495) grammes in 1 avoirdupois ounce, and 30 (29.573) mils in 1 fluidounce.

In using the metric system for manufacturing the preparations of the U. S. P. IX and N. F. IV, the terms used should be few in number and simply expressed. The metric system is a decimal system and its terms should be expressed in whole numbers and decimals, as is done by the official standards.

Thus: 1.5 Gm. is expressed as one and five-tenths grammes, not as one gramme and five decigrammes; or 2.5 mils are two and five-tenths mils.

In analytical chemical work and in the expression of dosage, the same rule is followed in writing, but in speaking, where the quantities are less than one gramme, it is usual to express them in milligrammes, and if less than one mil, in tenths of a mil.

The growth of the metric system in this country, so far as pharmaceutical manufacturing is concerned, has been handicapped by reason of the fact that drugs are bought and sold by the older systems of weights and measures, and to use the metric system results in the production of unusual volumes. Thus, 1000 mils equals 33.8 fluidounces or practically 34 fluidounces. The quantity of a fluid preparation usually made in a drug store is 32 fluidounces or less, and bottles holding this quantity are used for stock. But this difficulty can be readily bridged by using only 95 percent of the quantities of the official formulas and making 950 mils (32⅛ fluidounces) instead of 1000 mils; or better still, by using *metric* round bottom packer bottles, which can be readily obtained of glassware manufacturers in the following sizes: 60, 125, 250, 500 and 1000 mils or Cc.; these cost no more than bottles of corresponding volumes in the older system.

Pharmacists should use metric weights and measures for the making of pharmaceutical preparations whether physicians use the metric system in the writing of prescriptions or not.

The responsibility for the use or non-use of the metric system in the writing of prescriptions rests entirely with the medical profession, not with the pharmaceutical.

In this country, drug stores generally use two sets of weights, *i.e.,* one the apothecaries set for prescription purposes, of grains, scruples, drachms and ounces, and another or avoirdupois set of ounces, pounds, etc., for general use. For the measurement of volumes, there are generally used graduated glass measures of various sizes—60 minims and 120 minims, and 1, 2, 4, 8 and 16 and 32 fluidounces, with pints, quarts and gallon measures of metal.

Every drug store should have a set of metric weights from 1 centigramme to 50 grammes for prescription use, and, if they do manufacturing, a set from 1 gramme to 500 grammes, or, better, 1 kilo to 5 kilos. For volumetric work they should have metric graduated glass measures of 30 mils, 60 mils, 120 mils, 250 mils, 500 mils, and 1000 mils; and a few glass pipettes such as 1, 5, 10 and 25 mils; in fact, these latter are indispensable in applying the official tests. The 10 mil pipette and smaller should be graduated into one-tenth mils.

If graduated glass measures and pipettes in mils cannot be obtained, those graduated in cubic centimetres can be used in their places, as the difference between the cubic centimetre and the mil or millilitre is practically negligible.

Horace Greeley once said that the way for the Government to resume specie payment was to resume, and, similarly, the way for the pharmacists of this country to use the metric system is to use it.

The U. S. Pharmacopœial Convention and the American Pharmaceutical Association have kept step with advanced scientific progress by recognizing the superiority of the metric system over the older system—the former for the Pharmacopœia and the latter for the National Formulary, and I know that I voice the desire of these bodies when I express the earnest wish that the pharmacists of this country will, with the advent of the new edition of these works, use the metric system in the making of the official preparations and not depend upon the makeshift of equivalents.

The metric system of weights and measures is rapidly becoming the world's universal standard. Its use is now obligatory in 34 countries and optional in 11 countries, and the United States of America cannot afford to take second place to any country.

At the opening of the present session of Congress, Representative Charles H. Dillon, of South Dakota, introduced a bill making the metric system permissive until July, 1920, after which time it is to be compulsory and exclusive. Ordinarily such a bill would be fated for the pigeon-hole, but this bill is being aggressively supported by Secretary of Commerce Redfield, who is himself a manufacturer of large experience in export trade and a firm believer in the metric system. Hence, the prospects for the adoption of the bill in the near future seem bright.

As Judson C. Welliver writes (*Munsey,* April, 1916): "It is now becoming apparent for the first time that the change (to the metric system) cannot long be postponed, and that it is going to be highly beneficial to business and science, and to technical and popular interests. It is probable that Great Britain will not be far behind us in adopting the French (metric) units. British manufacturers have had to use French measurements in many new operations since the war has drawn the two countries closer together than ever before, and even English conservatism will not stand out forever against a good system that is also a universal system."

KAOLIN AND FULLERS' EARTH.

Hess (*Journ. Am. Med. Assoc.*) has investigated the therapeutic difference between kaolin and fullers' earth, which he finds to be considerable when used in the intestinal disorders of infants. These two substances are considered to be the same in the dispensatories but they are by no means alike he says, either in their composition or physiologic action. It is difficult to get a standard analysis of fullers' earth, but he gives what may be regarded fairly typical of the two substances. The main distinction is that kaolin has a far greater amount of hydrous aluminum silicate and fullers' earth considerably more calcium. One of the most notable characteristics of the two substances is their power to adsorb various alkaloids. This adsorptive property can be tested by determining the quantity of earth required to remove from solution a given amount of dye. Direct clinical observation and experience, however, are needed to determine their therapeutic value.

SOME EXPERIENCES IN PREPARING EMULSION OF SILVER IODIDE.*

BY JOSIAH C. PEACOCK AND BERTHA L. DeG. PEACOCK.

The so-called emulsion of silver iodide is a suspension of this compound in some suitable vehicle. It is probably well known to some and a total stranger to many others.

This subject has been treated by Mr. M. I. Wilbert in the *American Journal of Pharmacy* for February, 1906, and by Mr. J. K. Thum in the same journal for November, 1910, and November, 1915. Mr. Wilbert, where cited, mentions the availability of Irish moss, quince seed, salep and tragacanth as suspending media, and suggests a type-formula in which the silver iodide is first produced and then suspended in mucilage of Irish moss. Mr. Thum used the yolk of fresh eggs with ideal results, but brought about the formation of silver iodide in the presence of the yolk, instead of first forming the silver iodide and then suspending it as suggested in Mr. Wilbert's formula. Mr. Thum described mucilage of Irish moss as being, next to the egg yolk, the most efficient and satisfactory agent. Mr. Thum also used solutions of gelatin ranging in strength from 0.1 to 0.5 percent, which after frequent shaking during twenty-four to thirty-six hours brought the silver iodide into suspension; the solution containing 0.3 percent gelatin is mentioned as giving almost perfect results.

But it was our good fortune to be ignorant of this specific information, when about two years ago a physician gave an order for some five percent silver iodide emulsion to be ready in half an hour. We knew how to make silver iodide, but we had never been called upon to suspend it, and our inexperience in the matter gave us no little concern as we reflected on the possibility of turning out a satisfactory product.

We knew that an " emulsion " of silver iodide is used for photographic plates, and that gelatin is employed in this connection as the emulsifying agent, but not in a manner fit for our needs. Running over the list of eligibles in our minds, we felt that any one of several mucilages recalled might be as well suited as gelatin, and someone among us in the store remembered having heard of mucilage of Irish moss being used for the purpose. Coincidentally we were thinning some mucilage of tragacanth for pasting labels, and grasping the opportunity we took advantage of its readiness, and in less than the allotted time had an emulsion of fine appearance in the physician's hands. He remarked that he would need more within a few days, so we immediately prepared another portion with the mucilage of tragacanth, both to be ready and also to learn how well it would keep. For comparison, another lot was made with the aid of mucilage of Irish moss. Within a few days the emulsion produced with tragacanth had begun to darken somewhat and showed a tendency to settle a coarse curdy precipitate, while that made with Irish moss retained its light yellow color and consistence for a much longer time. In fact, the color never perceptibly changed, although the silver iodide settled to some extent in the bottle.

Later, the physician reported that the lot which he received had retained its original appearance until used. But the use of Irish moss mucilage had, to our minds, improved the appearance and stability of the product so greatly that we decided to use it until an opportunity to look further into the matter of suitable suspending agents should come.

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* Read before Pennsylvania Pharmaceutical Association, June 22, 1916.

Accordingly, we examined mucilages made from sassafras pith, flaxseed, salep, elm, quince, dextrin, starch, and acacia, all of which are well known in use as emulsifying agents and emollient vehicles. We also repeated our experiments with tragacanth and Irish moss, and at the same time tried solutions of gelatin and egg albumen. Yolk of egg was not tried during this period, for it was looked upon as of itself too readily changeable.

After our experiments had been made and our conclusions drawn, we were apprised of the articles written by Mr. Wilbert and Mr. Thum. We have said it was our good fortune to be ignorant of the specific information given by these gentlemen; now the reason for so saying is not that we do not appreciate their work nor declare for their priority on all points in common, but had we known of their publications we most likely would not have made the many experiments performed for the purpose of this paper, and thereby would have been deprived of such knowledge as we have gained through personal experience with this subject. However, we present our experiences because they not only essentially conform to and thus confirm the statements of these gentlemen, but also mention some matters of interest not touched upon in their contributions.

Our object in making these experiments was to devise a plan to quickly produce a finely divided suspension of silver iodide and do so by introducing as little suspending material as possible.

Silver iodide is affected by light, especially the actinic rays, when concentrated by a lens, but it is not so rapidly affected by diffused daylight or artificial light that it shows perceptible change in the time required to make an emulsion, and for that reason none of these processes need to be conducted in a dark room. Indeed, silver iodide has proven to be so permanent in these emulsions that we look upon the theory of its use as an antiseptic as somewhat of a conjecture of fact and fancy, to be settled by each practitioner for himself.

Unless otherwise specified our experiments were made on the basis of five percent silver iodide. Where a recognized formula for a mucilage existed, the prescribed strength and mode of preparation was followed, and the product used in the first trials with each individual mucilage.

The amounts of silver nitrate and potassium iodide needed to give the required quantity of silver iodide were calculated from the terms of the following well-known reaction:

$$\begin{array}{ccccccc} AgNO_3 & + & KI & = & AgI & + & KNO_3 \\ 168.69 & & 164.76 & & 233.02 & & 100.43 \end{array}$$

the symbols of which, designated in molecular weights, as shown under them, respectively, indicate that 168.69 parts of silver nitrate require 164.76 parts of potassium iodide to produce 233.02 parts of silver iodide with the simultaneous formation of 100.43 parts of potassium nitrate.

In the course of this paper it will be pointed out that the specific gravity of mucilage of Irish moss, no matter how long macerated when prepared, is but negligibly more than water, therefore in our calculations for a five percent suspension we used 456 grains, or the weight of a fluidounce of water, as the 95 percent of vehicle per fluidounce, which calls for twenty-four grains of silver iodide as the five percent sought. By ratio, we find that 17.375 grains of silver nitrate is required to yield this silver iodide. A close scrutiny of the figures involved in the chemical reaction reveals the fact that just a little more of silver nitrate is required than of potassium iodide for accurate and complete interchange with each other.

Now the United States Pharmacopœia requires silver nitrate to be practically pure, so no allowance need be made on its part for impurities. But the same authority permits potassium iodide to contain one percent of impurities, consisting chiefly of chloride, carbonate and free hydrate, hence some allowance must be made for their most probable presence; and to commensurate for any deficiency of actual iodide, it has been suggested to use a slight increase over the theoretical amount of potassium iodide, and make the quantities of the two chemicals equal. This was invariably done by us, after we had learned by experience that as little as one-fortieth of a grain of unaffected silver nitrate which might remain in solution would very rapidly bring about discoloration of Irish moss mucilage.

There can be but little, if any, objection found to the presence of a minute excess of potassium iodide over that actually required, as it is imperative to completely precipitate the silver so that no soluble salt of it remains in solution, to act either as an undesirable application or as a factor to discolor the emulsion.

For quantities greater than one ounce of five percent emulsion, simply multiply 17.375 grains by the number of ounces required.

Silver iodide can, of course, be precipitated, washed, and then suspended in a mucilage, although it requires longer time to get it finely divided by agitation or stirring, and for this reason the plan is not so well suited for hurried calls.

The products of our numerous attempts with this plan were not nearly so uniformly satisfactory as when the silver and potassium salts were dissolved each in one or two fluidrachms of distilled water and each solution diluted with a mucilage to half an ounce before mixing to form the insoluble silver iodide. In other words, the smoothness of the suspension was almost always superior when the reaction was brought about in the presence of a suitable mucilage, and if there is any chemical activity in the preparation, or if it is used solely as a protective application, it must be granted that the more finely divided the silver iodide the greater its efficiency.

When the precipitated silver iodide is not washed before suspending it, the emulsion will, of course, contain the potassium nitrate produced in the reaction, as also any excess of potassium iodide and other soluble salts originally present in the potassium iodide.

The amount of potassium nitrate formed in the preparation of a five percent emulsion is 10.34 grains per fluidounce, which equals a 2.27 percentage strength, which is three to four times the strength of the usual physiological or normal salt solutions. When intended for use in the eye, it may be thought necessary to rid the emulsion of soluble salts, although this may not be necessary in all cases, especially when we recall that ten to fifteen grains of borax or other salts are not infrequent ingredients in a fluidounce of eye drops. As a genito-urinary application the presence of these potassium salts is probably of little moment.

But if, for any reason, the emulsion must be free from soluble salts, the silver iodide may be produced from the water solutions of the necessary substances, thoroughly washed with either hot or cold water by decantation, and then incorporated in the suspending medium. Mucilage of Irish moss will serve here either hot or cold. Experience demonstrates that silver iodide settles very rapidly in hot water, and the expectation here would be to see the same thing happen; on the contrary, however, the hot mucilage envelops the silver iodide and overcomes this tendency to settle. Or, as we have found to be thoroughly practical when mucilage of Irish moss was employed, the emulsion may first be prepared by precipitating the silver iodide in the presence of the mucilage and the product then subjected to dialysis, using the ordinary parchment powder papers of the store as the necessary septum.

The former plan, for some reason which we have been unable to discern, unless it be attributed to allotropic conditions of the silver iodide, does not always show as smooth suspensions as would be desired; while the process of dialysis has almost always shown an improvement in this appearance, and has proven a simple expedient in ridding the emulsion of all crystalline matter.

Should it be deemed necessary to sterilize the emulsion either with the salts present or removed, it will be found that the preparation made with Irish moss will withstand this process. A sample subjected to streaming steam for three successive periods of twenty minutes each showed no change except a tendency to thicken slightly on the top surface, and was readily restored by shaking.

When silver nitrate was added to the several mucilages examined some of them showed a tendency to gelatinize, but none of them showed any appreciable precipitate of chlorides, so none were disqualified for such a cause.

Mucilage of sassafras pith, U. S. P., two percent, failed to suspend the silver iodide, as did also a ten percent strength of mucilage. Both products showed stringy coagulations and curds and upon standing and shaking did not improve in miscibility.

Mucilage of flaxseed, twenty percent, did not serve the purpose nor did one of 100 percent strength. The silver iodide went down in veritable lumps which were difficult and sometimes impossible to shake through the liquid.

Mucilage of salep, N. F., one percent, did not satisfactorily suspend either three or five percent of silver iodide, and failed to preserve it; while a five percent salep mucilage suspended three percent of silver iodide moderately well, but very soon showed a change in color.

Mucilage of elm, U. S. P., six per cent, was not a satisfactory suspending medium by any means; neither was a twenty percent strength. This mucilage behaved very much like mucilage of sassafras pith.

Mucilage of quince, N. F., Appendix, of two percent strength and even one of double strength did not suspend either three or five percent of silver iodide. The ten percent mucilage yielded variable results, since in some instances it failed outright and discolored, while in others it gave quite satisfactory effects; and one of the most presentable three percent emulsions, obtained from any experiment we made, was afforded by a twenty percent mucilage of quince after twelve hours, almost without shaking, although when first made it was a hopeless looking mess of feathery precipitate. We have never been able to exactly duplicate this particular result, which emphasizes the uncertainty of quince mucilage. In the weaker strengths, when the mixtures did not approximate suspension, discoloration was soon observed. When silver nitrate is added to quince mucilage it coagulates it to an almost jelly consistence which requires long stirring to render it sufficiently thin to enable one to proceed with the work. It will therefore be recognized that quince mucilage is very poorly adapted to the purpose.

Mucilage of dextrin, N. F., thirty-three and one-half percent, suspended the silver iodide, but decomposition began to show almost immediately.

Mucilage of starch, B. P., was prepared by thoroughly cooking starch with boiling water in the proportion of twelve grains to the fluidounce. In this strength of starch mucilage the silver iodide mixed, but quickly settled, leaving a perfectly clear supernatant liquid of about one-third to one-half of the volume. This preparation had the distinction of being the only one from which the emulsified part separated to leave a clear liquid. A mucilage of twenty-four grains to the fluidounce behaved similarly.

Starch showed but very little tendency to discolor, and seems to be suitable so far as appearance of emulsion is concerned, although on several occasions samples of it became mouldy and displayed a musty odor within a week.

Mucilage of acacia, made according to the U. S. P. formula of thirty-four percent with thirty-three percent of lime water, had a slight acid or nearly neutral reaction. An alkaline mucilage must, of course, be avoided. The slightly acid mucilage of acacia gave good results, as did also a mucilage of the same strength made without lime water and possessing a strong acid reaction to litmus.

Half strength and quarter strength mucilage of acacia also showed good effects. These mucilages contain so much more solids than Irish moss mucilage, however, that they cannot be recommended in its stead.

Mucilage of tragacanth, U.S.P., six percent, made with or without glycerin, was entirely too viscid, but reduced to one-quarter strength with water it suspended the silver iodide quite satisfactorily, but upon standing for a week or more showed in some samples an inclination to granulate, although some products containing it stood for months without showing much change in color. It can well be considered fit for any emulsions intended for prompt use; although it cannot be prepared as quickly as mucilage of Irish moss and for this reason is not as desirable.

Solutions of gelatin were tested as emulsifying agents only to find that concentrated ones were impractical to use in the presence of silver nitrate because it coagulated the gelatin so intensely; and that solutions which are diluted sufficiently to permit the addition of silver nitrate have very little immediate suspending action on it. For these reasons gelatin was discarded.

Egg albumen in full strength was coagulated so firmly by silver nitrate that it was rejected. Diluted with an equal volume of water it could be put through the process, but the result was a very curdy precipitate and so far from being satisfactory as scarcely to deserve mention along with Irish moss, tragacanth, acacia and starch.

In our original experiments little attention was intended to be given suspending media of animal origin, for the reason that they would putrefy. But after reading Mr. Thum's notes on this subject we decided to repeat our tests with gelatin and egg albumen, and also try yolk of egg. As reported by Mr. Thum, we also found yolk of egg to be a very efficient and prompt suspending material, but the emulsion began to show a change in color in less than a week.

Compared with the preparation from Irish moss, it cannot be considered in any way superior.

From the foregoing statements it will be observed that some of the mucilages which have been treated of satisfactorily suspend silver iodide but discolor so rapidly as to be impractical, while others among them did not suspend it at all, even when tried in much greater strength than the recognized formula for that particular mucilage.

We have now reached mucilage of Irish moss, N. F., three percent. It is undoubtedly the best practical emulsifying agent of all examined for the purpose, as every trial and test of it has proven. Its dependability and stability will unquestionably gain for it the commendation of all who try it for this purpose.

But before proceeding to tell the results of the experiments with the mucilage and silver iodide, mention should be made of some of the properties of Irish moss itself which were observed during these experiments. When dried it loses but a trifle in weight, indicating an almost total absence of moisture in its make-up.

The sample we examined and used for these experiments showed a loss of approximately ten percent of weight through the washing required to remove all but a faint trace of chlorine; the chlorine so removed represented in terms of sodium chloride six percent of the original substance. The water-insoluble substances present in the sample of moss amounted to ten percent, which indicated a total of eighty percent of available water-soluble matter for mucilage.

As hereinbefore stated, it is a remarkable fact that a fluidounce of mucilage of Irish moss made according to the N. F. directions weighs but two and a half to three grains more than a fluidounce of water, making the increase in specific gravity over water practically negligible in all calculations, as it affects but the third decimal place. This fact remains the same whether the mucilage is prepared with hot or cold water. A fluidounce of the mucilage was evaporated in a platinum crucible in order to check up this paradox; the residue weighed less than three grains.

Mucilage of Irish moss is practically neutral to litmus paper, for it shows but the faintest acidity, and a very minute amount of fixed alkali will render several ounces of the mucilage alkaline to litmus and phenolphthalein.

Mucilage prepared by macerating Irish moss in cold water serves in every respect as well as the mucilage prepared with hot water and allowed to cool.

A series of mucilages were made by maceration in cold water for periods of fifteen minutes, thirty minutes, one hour and three hours, respectively, with the result that a fluidounce of the thirty minutes, one hour and three hour samples were on an average within a grain of each other in weight, while the fifteen minute sample was within half a grain of the weight of the thirty minute specimen, demonstrating that thirty minutes maceration with cold water will produce a satisfactory mucilage.

After a number of tests made with the mucilage prepared in strict accordance with the N. F. directions, we finally devised the following plan, basing it on the results of our experiments:

Rejecting brown and harsher portions of the moss, select a few well-bleached and finely curled pieces to obtain the weight required; place these in a graduate and wash with several changes of water; as the texture softens, spread the branches to insure thorough washing; six to eight changes of water within two to three minutes will be found to be sufficient to remove the adhering chlorides. By this time the moss begins to swell and display a gelatinous surface and a test of the washings made now will show but a faint indication of chlorides. There need be no fear of overdoing the washing and thus losing mucilage, for as has been pointed out there will be an abundance of mucilage left to saturate the water. The moss is now macerated in a fresh portion of cold water with frequent stirring for half an hour, then expressed through well-washed muslin used double thick to obtain a clean mucilage. For each fluidounce of five percent emulsion to be made, 17.375 grains of silver nitrate are to be dissolved in one fluidrachm of water and this solution mixed with three fluidrachms of mucilage of Irish moss. The same amount of potassium iodide should be dissolved in one fluidrachm of water, and its solution diluted to four fluidrachms with mucilage. The two solutions are now to be mixed by stirring together in order to thoroughly break up any curds of the silver iodide and facilitate suspension. The product may now be transferred to suitable containers.

In carrying out this process, it will be noted that the addition of silver nitrate to mucilage of Irish moss shows but little opalescence; but the silver nitrate causes the mucilage to thicken almost to the point of gelatinization, although it can be stirred into a uniform consistence. On the other hand, the effect of the potassium iodide was to lessen the viscidity of the mucilage of Irish moss.

The entire quantities of the solutions may be mixed at once, or one may be gradually poured or dropped into the other with constant stirring; there appears to be but little difference in behavior, unless it be that, when the entireties are mixed, more time is required to shake or stir into a uniformity of appearance. It seems not to matter which solution is poured into the other, for although silver iodide will dissolve in concentrated solutions of potassium iodide, the solution here employed is entirely too weak even in the beginning and of course is becoming weaker and weaker as the reaction progresses. The emulsions prepared with mucilage of Irish moss present at the time of reaction have seldom, if ever, failed to be smooth and uniform. We have never had a sample prepared in this manner darken or display any decided change in color, but we have had several samples made by first precipitating the silver iodide, washing, and then suspending, begin to darken within a few days.

Emulsions made with Irish moss may be diluted with water or with moss mucilage to make weaker preparations. Dilutions made with water settle more rapidly than those made with mucilage—a natural inference. Suspensions in Irish moss never settled entirely clear, as did starch emulsions. When the precipitate does settle in moss mucilage it appears to be still enveloped by the viscidity of the vehicle and may be easily restored by shaking. A sample prepared last August demonstrates this condition very effectively. It is also possible to make a ten percent emulsion with moss mucilage, a sample of which prepared a few months ago is here shown (at Association meeting).

Owing to the heavy nature of silver iodide, it is evident that no emulsion should be used without shaking. In all of our experiments flint glass vessels and containers were used, and found to be thoroughly practical, and prolonged contact with cork stoppers has not in the least affected any of the emulsions which were satisfactory when first made, circumstances which compel us to believe that when once formed and protected with mucilage, silver iodide is quite a stable substance; in fact a sample exposed to bright direct sunlight for two days darkened but little, while a specimen unmixed with mucilage of Irish moss had turned dark gray within an hour under the same influence.

Failing in an attempt to filter an emulsion made with Irish moss, it occurred to us to dialyze it as a means of removing the salts in solution, and as a septum we used ordinary parchment powder papers. It required about twenty-four hours and five or six changes of water to extract practically all of the soluble salts. The emulsion was improved in appearance and consistence, through the removal of the crystalline constituents. A comparison was made by allowing a few drops of the original emulsion to spontaneously evaporate upon a smooth glass surface, with the result that the salts in solution were left as a crystalline centre in the residue, while a like performance with an emulsion from which the salts had been dialyzed showed no such crystalline residue, but instead a surface and appearance almost as smooth as a photographic plate.

The potassium nitrate left in the emulsion prevents the mucilage from decomposing, at least so far as odor is evidence. A sample prepared in August, 1915, gives no indication through odor of any change, whereas mucilage of Irish moss alone will within a week to ten days become obnoxious. Likewise, an emulsion from which the salts had been dialyzed developed an odor of putrefaction within a couple of weeks.

While it is evident that emulsion of silver iodide prepared by the method outlined will keep indefinitely, still if there is but an occasional call for it, and no need of keeping it ready made, the plans here and elsewhere given furnish a quick and thoroughly practical method for its production. But no matter which vehicle is used the facility with which silver salts are reduced by certain agents must be remembered so that all utensils used will be scrupulously free from such disturbing causes, for aside from these there is little chance of failure.

Upon comparing mucilage of Irish moss with the other available vehicles, its advantage over tragacanth will be seen to lie in the ease of preparation; while its preference over starch and acacia comes through it introducing so little substance into the preparation.

The advantages of mucilage of Irish moss may then be emphasized as follows:

It can be depended upon as an efficient suspending agent.

It is easily and quickly prepared.

It gives a permanent emulsion.

It supplies a sufficiently viscid medium though adding but a trifle of solid matter.

It is as inert as any other suitable substance.

It is inexpensive.

While yet concerned with this subject a few words will be said regarding the sulphur which is present in Irish moss. To one who had never incinerated a vegetable drug and found a mass of hepar sulfuris as the resulting ash, it was a revelation to encounter such when some unwashed Irish moss was subjected to a bright red heat. With a lower heat very little sulphide is formed, but raised to bright redness, one can see a phosphorescence as of free sulphur burning, although sulphur dioxide could not be detected by odor. The fused mass amounted to 21.25 percent of the original weight. Chlorides were present, of course.

Sulphates, earthy phosphates, carbonates, iron, aluminum, and silica were other constituents encountered in the examination of this ash, but no complete analysis was attempted.

A second weighed portion of moss was washed until it began to gelatinize, then dried and ignited. The result showed ten percent of ash and contained abundant alkaline sulphides, and a little chlorides.

A third weighed portion was completely exhausted by repeated applications of boiling water, the residue was dried and weighed. This insoluble part represented ten percent of the original substance. It was next incinerated and found to yield 2.5 percent of ash, calculated on original moss. The ash from this treatment was snow-white; it contained neither chlorides nor sulphides, but consisted of silicious matter. It is worthy of remark that in whatever form the sulphur exists in Irish moss, it has arranged itself in a very accommodating manner, so far as our present use for the mucilage is concerned.

SYRUP OF TEA FOR ICED TEA.*

BY CHARLES H. LAWALL AND M. R. LAWALL.

One of the overlooked opportunities of the pharmacist during the summer season is the preparation and sale of a concentrated syrup from which iced tea may be instantaneously made by the simple addition of water, ice and lemon.

Iced tea is one of the most popular of summer drinks taken with meals either at home or in restaurants. It is somewhat of a bother to prepare in the home and the average housekeeper would doubtless welcome a simplification of this portion of her summer work connected with the family menu.

That the plan is practicable and the syrup permanent when properly made has been demonstrated during two summers in our own home and we believe that the idea would be a moneymaker if properly used.

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* Read before Pennsylvania Pharmaceutical Association, June 22, 1916.

The flavor of iced tea does not markedly differ as to whether it is made from cheap or expensive tea, the added lemon masking any differences distinguishable to a connoisseur. Tea siftings, which are always obtainable at a very low price, have been used by us and in the preparation of the samples illustrating this paper. The procedure is as follows for a plain tea syrup, which seems to be the most permanent and satisfactory:

Tea siftings.............1 pound (av.)

Place in a glass percolator after moistening slightly with cold water, pack firmly, and pour boiling water over the tea until 64 fluidounces of percolate has been obtained. Place 7¼ pounds of dry granulated sugar in 1 gallon bottle, add sufficient of the tea infusion to fill the container and dissolve the sugar by agitation, subsequently sterilizing the finished preparation in the customary manner. As it is a little difficult to dissolve the sugar by agitation, the sugar may be dissolved during the sterilization.

This plain tea syrup, when served in the proportion of about 2 fluidounces to the glass (the tall iced tea glass is meant), flavored by adding a slice of freshly cut lemon and diluted with ice water (adding a piece of ice to the glass as well) makes a very satisfactory and enjoyable preparation with a minimum of trouble.

It is possible to make a lemon flavored and acidulated syrup as well, although these variations require more trouble to prepare on account of the subsequent clouding and precipitation due to the added ingredients. Several of these modified syrups are shown, all of which require clarification and resterilization, as may be readily seen. They were prepared as follows:

No. 2 was prepared in the same manner as No. 1, except that the grated rind of 16 lemons was mixed with the tea siftings before percolation and 600 grains of citric acid in solution added to each gallon.

No. 3 was prepared in the same manner as No. 1, except that the grated rind of 16 lemons was mixed with the tea siftings before percolation and a pint of lemon juice was added to the sugar before adding the tea infusion.

No. 4 was prepared in the same way as No. 1, except that 200 drops of oil of lemon were sprinkled over the tea siftings before percolation with the boiling water and 600 grains of citric acid was added to each gallon.

The effect of the citric acid is to markedly lighten the color of the preparation, as may be seen by the samples shown (at Association meeting).

A very attractive preparation in odor and taste can be made by flavoring the plain tea syrup with a blend of soluble extracts of orange, lemon and lime made for the purpose.

The tea syrup should be a popular and profitable article for sale during the summer months, either prepared as described above or by some modification developed after experimentation, according to taste.

The hours will come, and come to every man, when task-work quivers and palpitates with life; but perhaps they only come because we have been faithful, with a certain grimness, through the days of gloom. Let a man hold to his life-work through mood and melancholy. Let him hold to it through headache and through heartache. For "He that observeth the wind will never sow; and he that regardeth the clouds will never reap."—G. H. MORRISON.

MEDICATED WATERS.*

BY JOHN K. THUM.

The Pharmacopœia contains 17 medicated waters, of which 6 are made from volatile oils and 5 of these by triturating the volatile oil with purified talc, gradually adding the required amount of distilled water and filtering. Medicated waters made in this manner are very unsatisfactory; for the first few days they show up fairly well, but from then on they rapidly change for the worse, so far as appearance and pleasant flavor obtain.

Now the United States Pharmacopœia does not insist that these waters must be made according to this procedure, as the following quotation from it clearly indicates:

> The Medicated Waters, when prepared from volatile oils, are intended to be, as nearly as practicable, saturated solutions which must be clear, and free from solid impurities. In the processes which follow, the solution of the volatile oil is facilitated by the use of purified talc; but the solution may, if preferred, be aided by replacing the purified talc by pulped or shredded filter paper; waters may also be made by the addition of volatile oils to hot water and separation of the excess of the former, or by the distillation of the drug or the volatile oil with water, if by either of these methods the finished product corresponds in all respects with the official requirements.

Bitter Almond Water is directed to be made by dissolving the oil in distilled water by agitation and filtering through a wetted filter paper; no mention is made of using hot water. By this method a water is obtained that looks well and retains its appearance indefinitely. Creosote Water is directed to be made in the same manner, and Chloroform Water in a manner that is somewhat similar; in this case the procedure is as follows: Add enough chloroform to a convenient quantity of distilled water, contained in a dark amber-colored bottle, to maintain a slight excess of the former after the contents have been repeatedly and thoroughly agitated. When required for use pour off the needed quantity of the solution, refill the bottle with distilled water and saturate it by thorough agitation, taking care that there be always an excess of chloroform present.

In 1913 the writer presented a paper in which he advocated the making of camphor water by agitating small pieces of camphor with distilled water in a bottle and replenishing the dispensing bottle by pouring through a piece of gauze tied over the neck of the stock bottle. He is still wedded to that method of making camphor water. Success with this method naturally led to experiments with the other medicated waters and it was found that fine waters, that remain clear indefinitely, can be made by simply agitating the volatile oils with distilled water and filtering through a wetted filter paper in the same manner that the Pharmacopœia suggests in the making of bitter almond and creosote water.

The technic for this method of making medicated waters is very simple and is as follows: Eight mils of volatile oil are poured into a four-litre bottle and distilled water added in portions, the bottle being vigorously shaken after the addition of each portion; sufficient distilled water is then added to make up to four litres.

When the dispensing bottle requires replenishing the stock container is well shaken and the medicated water filtered through a filter paper.

Since making our medicated waters in this manner we have never been troubled by the development of fungi or the growth of other microörganisms. This is certainly an advantage that the practical pharmacist can appreciate as well as the fact that his medicated waters are always clear and sightly.

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* Read at the meeting of Pennsylvania Pharmaceutical Association, June 22, 1916.

The saturation of these waters can easily be determined. If to an equal amount of water a 50 percent solution of magnesium sulphate is added, there is at once developed a distinct cloudiness.

GERMAN HOSPITAL, Philadelphia.

THE CULTIVATION OF CASTOR OIL PLANT AS A COMMERCIAL POSSIBILITY: RICINUS COMMUNIS, PALMA CHRISTI.*

BY JOSEPH L. LEMBERGER.

Always an admirer of the beautiful palma christi, a thought possessed the writer to plant some of the seed of the variety known as Ricinus sanguineus, a beautiful, stately and highly colored plant, and note results as to its commercial value. My experience was satisfactory beyond expectation, having no previous thought beyond that of an ornamental bush, and when the fact has materialized, that the castor bean can be cultivated as a commercial product a large agricultural asset will be attained.

After the season had closed correspondence with seed crushers and vegetable oil producers has convinced me that the subject is entirely feasible and deserves more than passing attention—weather conditions appearing as the only doubtful factor. This also applies to other crops as well.

The cultivation is very simple. The seed will generate almost anywhere, provided the soil is good. Experiment is being made this summer by planting the seed along the fences where the plow and harrow cannot be used, and only when the commercial fact is proven or established, need we think of field culture.

I am interesting farmers in my county and experiment will be made on a much larger scale—will try some waste places on the farm, and, if successful, may publish the results, if spared, some future time.

It will be interesting to know that there is not at this time any attention paid to cultivation of castor oil beans for commercial purposes in this country. After the writer began formulating this paper, searching for data, etc., reference was made to Professor Wm. Procter's article along similar lines in 1855, giving a particular account of the mode of cultivation in western states (*American Journal of Pharmacy,* vol. xxviii, p. 99). At that period we remember the *St. Louis Brand Castor Oil* stenciled on the boxed containers and barrels of castor oil. The present generation of pressers of the castor oil seed know nothing of the industry of that period and it is evident that there is no longer any attention given to the cultivation of the castor oil bean as an industry. The journal quoted from has the following, which I prefer to make part of this paper as a pleasant memory of our departed friend:

> Southern Illinois is the source from whence all the beans are brought that are sold or manufactured in St. Louis. The ground is prepared as for other crops, and when there is no longer any danger from the spring frosts, the seeds are planted in hills and rows, much in the manner of planting Indian corn, with the

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* Read before the annual meeting of the Pennsylvania Pharmaceutical Association, June 22, 1916.

exception that there is but one seed put into each hill, and that at every fourth row a space is left sufficiently wide to admit of the passage of a team for the purposes of gathering the crop. Unlike the cereal grains the ricinus bears at the same time flowers and fruit, and the severity of our climate, which renders it in this latitude an annual plant, destroys its vitality whilst yet decked with bloom. The ripening commences in August, and the crop is gathered at intervals from this date till the plants are destroyed by the frost.

The yield, of course, varies with the quality of the soil, and the care of the culture. Twenty-five bushels from an acre of ground is considered a very large crop, and is but seldom obtained. From sixteen to twenty bushels per acre is a very fair yield in a season not marked by drought or other unfavorable feature.

Year.	Crop in bushels.	Factories in Illinois.	Factories in St. Louis.	Barrels of oil made.	Equivalent in gallons.
1850	250,000	18	2	9900	350,000
1851	160,000	7	2	7000	255,000
1852	90,000	5	2	5500	192,500
1853	65,000	3	3	4200	147,000

The estimated crop of beans for 1854 is but 10,000 bushels, being almost a total failure, arising from the excessive drought that prevailed during the past summer over that part of the country. The number of mills in operation in 1854 was but five, and they only employed part of the time.

As indicated, I planted the bean of Ricinus sanguineus—I knew no other variety at that time. There are other varieties, and I have obtained and planted this year Ricinus Gibsonii, Ricinus macrocarpous and Ricinus Phillippiensis. The mature plant in my yard attained the height of about fifteen feet. The foot stalk of one of the plants, as well as some specimens of the fruit, are herewith exhibited (at Association meeting).

Through correspondence with one of the largest seed crushers and oil-producing firms in this country, much valuable information was obtained, and the following excerpts from several letters will, I feel sure, interest you:

March 23, 1916.

We have the pleasure to acknowledge receipt of your valued favor of March 22nd and are very pleased that you are interested in raising Castor Beans as a commercial crop.

If you can raise these in sufficient quantities, or if by combining with your neighbors you are able to do so, we think the experiment might be profitable.

The value of castorseed, or *castor beans,* fluctuates very much, according to the size of the crop in India, the demand for consumption in the United States, and the fluctuation in freights from India to the United States; which, in the latter case, have risen from about 20 cents per bushel of 50 pounds to $1.40 per bushel of 50 pounds, due to war conditions and the requisitioning of so many ships by the English Government.

At the present time the value of castor beans in not less than carload lots delivered to New York City points, in bags and without charge for bags, is from $2.25 to $3.15 per bushel. It has been higher and it has been within the last two years as low as $1.22 per bushel. However, we think the normal price is about $1.30 per bushel, 50 pounds being considered a bushel.

We can give you no information whatever regarding planting of these seeds, as derived from those who have planted them for commercial crops; and inquiry at the Department of Agriculture at Washington fails to elicit any information in this direction. The superintendent of a large country place, near Buffalo, has advised us that he would expect success in planting one bean to a hill and placing the hills three feet apart in rows four feet apart. We think, however, he had in mind the raising of beans for the beauty of the plant and blossom rather than for commercial purposes; and in planting for a commercial crop it would be better to plant three beans in a hill, lest one bean might possibly not germinate. On the above basis, it would require 726 beans to plant one acre, one bean to a hill, or, say 1½ quarts or about 2¼ pounds; and to plant three beans in a hill, 2178 beans, or, say 4½ quarts or about 6¾ pounds.

We would be interested to know how this compares with your experience and to see a sample of the beans raised by you.

March 27, 1916.

We beg to thank you for your letter of March 24th, which contained very interesting information regarding the cultivation of Castorseed, with some of which we were not familiar.

We also thank you very much for the sample of the seeds you have raised and have sent them to our Laboratory for analysis as to percentage of oil contained therein. On receipt of our chemist's report, which, however, may not be for two or three weeks, as the Laboratory is very busy just now with very important matters, we shall be very glad indeed to give you our opinion of the value of the seed as compared with that shipped from Bombay, India.

April 1, 1916.

Referring to the sample of castor beans you were kind enough to send us, we beg to report that an analysis indicates them to contain about the same percentage of oil as the Bombay beans.

The foot stalk or trunk of the plant you will observe is full of pithy cellulose-membranous substance, very suggestive for wood paper pulp. Trying to determine uses for the woody portions of the plant, the writer incinerated the *burr* envelope of the seed and all other portions of the plant, and by the old process of making lye by lixiviation and evaporation obtained a fair percentage of potash, and have for your inspection a presentable sample of potassium nitrate. The experience we are passing through at this time naturally leads one to believe that we might economize, incinerating much of the refuse of saw mills—and forestry—with a view to utilizing the alkali.

In concluding this examination as to the possibilities, would define:

1. Enlarged castor oil industry in the United States.
2. As by-product, paper pulp or the conservation of alkali contents from burr to root.

As a last word, all portions of this country may not be available on account of climatic conditions, but the writer believes, from his experience, that the moist, warm regions of the southern part of this country should take advantage of the possibility. We may not be able to raise the African Ricinus as a perennial tree, as is stated by a writer, but realize the practical possibility of having annual crops of *castor oil beans* as is done with any of the familiar farm products.

The most natural privilege of man, next to the right of acting for himself, is that of combining his exertions with those of his fellow-creatures, and of acting in common with them. The right of association, therefore, appears to me almost as inalienable in its nature as the right of personal liberty.—De Tocqueville.

THE THREE ANGLES OF THE TRIANGLE.*

BY H. V. ARNY.

I count it a distinct privilege to address the graduating class of the Medico-Chirurgical College this evening. Too rarely do the three branches of medical science, medicine proper, dentistry and pharmacy, gather together on the equal footing of common interest and cordiality. Here this evening you gather in the common bond of affection for the alma mater whose diplomas you will receive on the morrow. Here each of you, while rightly believing your department of the healing art is best, recognizes " the other fellow " as a good chap, worthy of your friendship, your esteem and your confidence.

To my mind, the three departments of medical instruction represented here this evening are as essential to the well being of medicine as are the three angles to the triangle. As a spokesman of pharmacy, I am modest enough not to insist upon an equal angled triangle, but I will maintain that pharmacy is one of the angles and even dare remind our brethren in medicine and dentistry that if one of the three angles of the triangle is eliminated, the triangle automatically becomes a straight and narrow line coming from nowhere and leading to infinity.

In short there is not a practitioner of medicine or of dentistry, unless he be a mental healer or a therapeutic nihilist, who does not lean upon pharmaceuticals in his treatment of diseased conditions, and in these days of specialization such products are naturally obtained from the pharmaceutical specialist. Whether the specialist is the large manufacturer or the retail druggist is not at the present moment under consideration. The fact remains that the physician and the dentist instinctively turn to the pharmacist for their medicaments; hence my contention that pharmacy is one of the three angles of the triangle is based upon sound logic.

Let us now turn to the question of the man behind the drugs; let us consider the relations existing between the pharmaceutical manufacturer and the retail pharmacist. The past half century has seen a wonderful development of the preparation of pharmaceuticals by large concerns, even as it has seen a remarkable growth of all lines of industrial activity. It sometimes seems to the student of the problem that all individual activity is to be engulfed in the sea of corporate aggression. Second thought, however, shows me that this fear is unfounded and that for reasons which will be given later. Be this as it may, the scope of activity of the manufacturing pharmacist has increased enormously, and even those of us who a score of years ago resented the intrusion now have to admit that it is the logical result of the sound economical law, that the average man cannot successfully compete with machinery. So the manufacturing pharmacist is here to stay, despite the railings of the retail pharmacist and of those of us who are the retailers' friends, admirers and advocates.

The manufacturer is here because machinery can make things cheaper than can the hand-worker; he is here because his system permits the employment of experts in each line of which he is a producer; he is here because his sales organization permits him to let the world know that he produces certain goods.

I might add that the manufacturing pharmacist is here largely because of the retail pharmacist. In the early days of pharmaceutical manufacturing, the retailer wasted his energy in railing against the aggressions of the manufacturer rather than devising suitable means of meeting the new competition. As I have said to my students more than once: "If the druggist used the same skill in persuading the physicians of his neighborhood to prescribe the products of his laboratory, as the detail man of the manufacturer employs in 'boosting' the specialties of his concern, the detail man would not have a leg to stand upon." The best proof of the truth of this statement is the fact that most of the large pharmaceutical manufacturing concerns of to-day began in the back room of a retail drug store, the proprietor of which, twenty or thirty years ago, dared to go out after medical patronage. I recall how amused I was in my student days in Philadelphia to hear that one of my classmates was enlisted by his "boss" to go out and talk to physicians about the peculiar merits of the products of the laboratory of that particular drug store. It struck me as such a work of supererogation to tell doctors that Blank was a good druggist. That was a self-evident fact. Of course the doctors knew that he could make good products. And yet, out of those efforts has grown one of the great pharmaceutical enterprises of your city and that original "detail man" was the forerunner of a great sales force which has the world for its field.

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* An address delivered June 8, 1916, at the reception given to the medical, dental and pharmaceutical graduates of the Medico-Chirurgical College of Philadelphia, by the General Alumni Association.

Verily the manufacturing pharmacist is here to stay, but he will not monopolize the entire field of pharmacy unless you physicians and you dentists and you retail pharmacists so will.

A few minutes since, I pointed out the futility of the average hand-worker competing with a machine in the manufacture of average goods. But let me now say that it is equally futile for a machine to compete with a true artist in the production of an unusual piece of work.

The chromo is a very pretty ornament to hang upon our walls, but it will never wholly replace the living canvas upon which the artist has poured his soul. The phonograph and the piano-player have added much to the gaiety of nations, but despite the advertisements of interested concerns, there is a mechanical "something" about the really admirable performances of these appliances that tells one that they are "canned music." The fascinating advertisements of the Goldenstone-Silvermount clothes, with their stunning pictures of swagger youths in perfect array, tell us that the investment of fifteen dollars or slightly more will make Beau Brummels of all of us; yet somehow or other these alluring garments do not as a rule look as well on you and on me as they do on the Gibsonian models and some of us are stubborn enough to prefer to pay more to some tailor who understands our structural frailties and who uses his individuality in counteracting the defects of our frames.

The same truth applies to pharmacy. The tablet, the coated pill, the bottled elixir or even the "original package" nostrum may and do have attractiveness of appearance that many products of the prescription counter may lack, but the problem which every medical practitioner should squarely face and which is imperatively before you gentlemen who will be declared physicians to-morrow is whether you should chain yourself irretrievably to the ready-made medicine. No greater indictment of this fault of the modern physician was ever given than one which I was privileged to hear twenty years since from the lips of that prince of practitioners, Dr. Edmond Souchon, of New Orleans, who, speaking at a meeting of the Medical Society of that city, gave a word picture of the physician of the old school whose behavior at the bedside of the patient partook of the nature of a ritual. First came the clinical examination, with formal precision and studied absence of haste; then came the diagnosis with manifestations of sympathetic interest; then came the writing of the prescription; the impressive moment when the paper was called for, the gold pencil was carefully adjusted and the ingredients written "line upon line" with time for thought given to each line. "What do you young physicians do to-day?" he queried. "You rush in, you look at the patient's tongue and feel his pulse and then you whip out your prescription blank and write 'Jones' Celebrated Pertussis Elixir,'" and bear in mind, this pen picture was drawn a score of years ago when the dispensing physicians were few and far between.

That it will be a bad day for the healing art when physicians depend entirely upon ready-made prescriptions in the practice of their calling, practically every thinking man will admit. To this, you physicians and you dentists will reply, "Oh! when my patient needs a special combination I do write an original prescription and have it taken to some pharmacist for compounding." But, I say, *what will happen when, because of the prevalence of the ready-made medicine, there will be no prescription pharmacists?*

Here is the vicious circle. The physicians claim that the average druggist is so busy with the mercantile side of his calling that he does not give proper attention to the dispensing of prescriptions; hence the medical man is forced to dispense tablets or to order ready-made mixtures; the average druggist retorts that the modern physician's neglect of the art of prescription writing has forced the druggist to give more attention to trade matters, than to his prescription department.

Like most vicious circles, there is truth in both contentions; but like all vicious circles, the truths are only half truths. The circle is defective, and should give way to the medical triangle suggested at the beginning of this address.

It is true that the average druggist is giving too much time to the mercantile side of his calling and too little attention to its professional aspects, but it is equally true that his explanation given above is sound. The trouble with pharmacy is that there are too many druggists and too few real pharmacists. In the first place, there are more drug stores in this country than there is need for. In the second place, the so-called "progress" of the past quarter century has been largely a matter of lavish expenditure. As my beloved preceptor down in New Orleans remarked to me on my last visit to that city, "I am making about as much money as I did thirty years ago, but to make this money I have to do three times the business I did then." With all this increase in the cost of doing business has come a decrease in the number of prescriptions, and if the average druggist did not turn to mercantile lines, scarcely compatible with the dignity of pharmacy, he would soon go into bankruptcy.

The statements just given suggest the retort that the physician and the public are not interested in the well being of any individual druggist or even of retail pharmacy as a whole. "Let every tub stand on its own bottom," you might say, "and if retail pharmacy is not fit to survive, let it perish." To this, my sole reply is the one given above. *It will be a bad day for the healing art when you physicians and you dentists depend entirely upon ready-made prescriptions in the practice of your calling.* Yes! even you dentists—despite the many admirable dental supply firms who cater to your needs, medical as well as surgical—have a direct interest in the maintenance of high-grade retail pharmacies where your extemporaneous prescriptions will be properly compounded and where you may obtain expert advice upon the pharmaceutical aspects of your calling.

But where amid the clutter of chain stores and "chicken sandwich parlors" that bear the name of drug stores will we find the real pharmacist; the man who prefers the compounding of prescriptions to the selling of apples and of cameras?

A goodly number indeed there are who have not gone after the false gods of commercialism.

In this city, I, a comparative stranger, could mention a score or more of pharmacists who, despite adverse conditions, conduct pharmacies with the highest degree of skill amid surroundings befitting the dignity of the profession which they truly follow. And what is still more encouraging, these gentlemen have practised professional pharmacy with marked financial success.

In addition there are hundreds of druggists in this city who could and would practise real pharmacy if sufficient pressure and encouragement from the medical and dental professions obtained.

These two words, encouragement and pressure, epitomize what medicine and what dentistry can do to bring retail pharmacy to the plane where they would have it. Encouragement of such splendid institutions of pharmaceutical instruction as your own alma mater, pressure to prevent the existence of low-grade institutions which are willing to turn out incompetents provided only that the size of the graduating class will attract still larger entering classes. Encouragement of the leaders in pharmacy in their efforts to elevate their calling by providing more stringent requirements for registration as pharmacists; pressure upon legislators by seconding the efforts of pharmaceutical legislative committees toward securing more adequate protection of the public against the indiscriminate sale of drugs, medicines and poisons by totally unqualified store keepers and by poorly qualified druggists. Encouragement of the real pharmacist by writing prescriptions for mixtures which demand skill in compounding; pressure by refusing to patronize druggists who fail to produce satisfactory extemporaneous prescriptions.

"But there's the rub" has more than one physician responded when I suggested the foregoing expedient. "If I insistently recommend a particular pharmacist, my patients think there is an unholy alliance. If I express emphatic disapproval of a certain druggist, he may make trouble for me."

There are several ways in which the physician may wield the influence just suggested. In the first place, it is not merely the privilege, it is the duty of the physician to insist that his prescriptions be properly compounded. I have known fearless physicians who have threatened to give up the case if prescriptions were taken to a certain incompetent druggist. As to recommending specially qualified pharmacists, most physicians have no qualms in recommending to their patients one or more specialists in surgery or in throat work, so why should they not likewise recommend pharmaceutical specialists? In a city of the central west, the problem was well met by the use of an associated prescription blank, on the back of which appeared the names of a dozen pharmacists scattered through the city, any one of which was well qualified in his art.

There is at the present time great need of crystallizing selection in pharmacists by physicians upon the definite nucleus of public opinion.

It is an accepted fact that the possession of the registered pharmacist's certificate does not assure pharmaceutical excellence any more than does the registered physician's certificate guarantee that its holder is an ideal physician. To be a highly satisfactory prescriptionist, one must have education, a well-equipped laboratory, surroundings compatible with the dignity of the service, and last but by no means least, a marked inclination for prescription work. Two methods of determining and of manifesting these requirements have been suggested thus far. Dr. Bastedo of New York, a graduate of pharmacy and a medical practitioner and teacher, proposes the creation of "certified pharmacists" by a joint commission of physicians and pharmacists. The other suggestion is the organization of an

American Institute of Prescriptionists, doing for pharmacy the sifting out presumably accomplished for surgery by the American Institute of Surgeons and for chemistry by the Institute of Chemical Engineers.

The standardization of pharmacy is in the air and you representatives of medicine can do much, if you only will, to bring about the reform.

And in conclusion, a special word to the pharmaceutical graduates of 1916. The institution whose diplomas you will receive to-morrow has given you thorough and sane courses of instruction fitting you for a career in either one of the two fields of pharmacy—manufacturing and dispensing. It is eminently wise, it is entirely right, that these two subdivisions of pharmacy be given equal attention by colleges. Each phase of pharmacy is necessary to the public welfare. Each phase has so much to do in its own particular sphere of influence that it has little time to encroach upon the other phase. Bear in mind that pharmacy has two patron saints, and while my studies in eschatology have not shown me the individual activity of Saint Cosmos and of Saint Damian, I am sure that one stands for manufacturing and the other for dispensing.

Some of you go out to-morrow as pharmaceutical chemists, while others of you will be dubbed "graduates in pharmacy." You have spent your college years together united by the fraternal bond of mutual interest, even though your courses of instruction have not been identical. Even so, while your future careers—manufacturing and dispensing—may be different in kind they are alike in declaring allegiance to Mother Pharmacy. Different viewpoints, the two phases may have; different opinions on certain topics may obtain; but on the other hand, there is no need for friction, since the two sides of our calling meet upon the common plane of a common service.

To those of you who are about to embark in manufacturing pharmacy, I might point out that the commencement season suggests that you are about to begin the real battle of life. Your college has trained you and it therefore devolves upon you to acquit yourselves like the men that you are. The field is broad; the rewards, to those who win, are large. Your success, thanks to your alma mater, is largely within your own hands.

And as to you who will go into retail pharmacy, a great work lies before you. Your college has fitted you to become real pharmacists, and if you permit the siren voice of expediency to turn you from real pharmacy to mere vending, then do not join the mournful chorus which laments, "There is nothing in pharmacy." This statement is not the vaporing of a theorist; if you do not care to take the word of a "professor man," listen to what a practical man had to say on the subject in a recent issue of the *N. A. R. D. Journal*.

"It is one of the queerest paradoxes of the times that a pharmacist will spend time, effort and money to become a professional pharmacist; that is, to learn how to prepare and dispense medicinal preparations and as soon as he does know how, he spends the greatest part of his efforts to sell drug store merchandise. It is, of course, largely necessary, according to modern ideas, that the drug store be a miniature department store, in order that the net profit be sufficient to provide an adequate income. But why the most profitable department is absolutely neglected in a great number of instances passes the comprehension of all thinking and intelligent pharmacists, who are making a financial success of this branch of their undertaking."

The hour is at hand when you will have to choose between real pharmacy and third-rate shop keeping. Each of you has the knowledge essential to the practice of real pharmacy. The future will show whether you have the will to dare to stick to the ideals of true pharmacy.

STATE BOARD EXAMINATIONS.*

BY ROBERT L. MORLAND, MEMBER OF THE MINNESOTA STATE BOARD OF PHARMACY.

It has often been the subject of comment and inquiry that so many candidates fail in the examinations conducted by our Board. There are various reasons for these failures. The Board arranges its examinations with the greatest possible care, and spends more time in conducting them and marking the results than probably any other board in the country. It endeavors, so far as possible, to avoid questions which necessitate memorizing abstract facts of no particular value, and avoids difficult prescriptions and incompatible preparations. But it is very difficult for a board to frame questions and assign practical work that will fit the mental capacity and mechanical ability of the majority of the candidates who appear before it, unless such board considers its work merely a perfunctory duty, to be disposed of in the easiest manner and in the least possible time.

The prevailing thought among the candidates of to-day seems to be to get through every task with the least possible exertion; and, therefore, it is impossible for these to show even fair knowledge or skill in pharmacy in the length of time they devote to the study of it and the manner in which they use their time.

The idea seems to be general that a thorough knowledge of pharmacy may be obtained by the average student after four years' experience in a modern drug store, or two years in such and two years in a school of pharmacy. Such a feat is not impossible, but the students who would burn the amount of midnight oil necessary to its accomplishment are comparatively few.

The young people of to-day, as a class, are not studious; they are pleasure-loving. At school, college, and university they waste a great deal of valuable time in outside activities and social enjoyments, and " cram " for examinations.

I am a firm believer in a proper amount of recreation and social enjoyment, but these should never be allowed to interfere to any serious extent with the course of study. There are, of course, in every school some who can devote a great deal of time to matters outside of the prescribed course and still keep their work up to a high level, but the majority cannot do this. When those who have wasted valuable time in one way or another appear as candidates before a quasi judicial body, such as a Board of Pharmacy, and are given examinations to determine how much of their education has been retained and how much has filtered through, then we hear complaints of the unfairness of some of the questions, the difficulty of the examinations as a whole, or the objectionable personalities of the examiners as excuses for ignorance, carelessness, or both combined.

In case you may think these strictures too severe, let me give you a few answers, taken at random, from recent examination papers:

" Rhizomes are Mediterranean stems which grow underground."

" Pilocarpus is broom tops."

" Phenol is obtained from the destructive distillation of wood."

" The source of phenol is the mines of Germany."

" Pepsin is taken from the inside of a hog; the pancreas is taken out and dried and kept in air-tight bottles."

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* Read before the Scientific Section of the Minnesota State Pharmaceutical Association, Minneapolis, February 9, 1916.

"Pancreatin is taken from the calf. It is prepared in nearly the same manner as pepsin."

These last two answers are by the same candidate.

"A fixed oil is an oil that is made by distillation or other process, and an essential oil is an oil made artificially by dissolving in an alcoholic solution, such as perfumes, etc."

"State source of paraffin." Answer: "From the whale."

"Pepsin is found in the lining of the abdomen of the hog."

The last two answers are from graduates in pharmacy.

"Pepsin is found in the bile of a sheep. Pancreatin is from the fat of a hog. Pancreatin is obtained from hops or barley. Linseed oil is obtained from the cotton seed."

All of these are answers from the written portion of the examinations.

Now let me give you a few examples of how the practical work was done. Every candidate is compelled to bring with him a copy of the U.S.P. and N.F., and they have these books before them in all practical work.

"Prepare one dozen compound cathartic pills," was one of the instructions given at the last examination. The completed pills varied in weight from 22½ to 80 grains. Another example was: "Prepare six Seidlitz powders." Many of the candidates did not weigh the powders, but divided them by eye, with the result that the blue papers varied in weight in the same half dozen from 16 to 53 grains. Several of those who weighed the powders had differences of from 15 to 30 grains, and in one case 9 grains difference in the white papers. This set of Seidlitz powders, which I now present for your inspection, was made by a candidate who has had three years' experience in a drug store, but has never attended a school of pharmacy. He thought he had a good chance to become a registered assistant by examination. He had never seen the inside of a Seidlitz powder. He had never sold one except in the original wrapped packages bought from the manufacturer. The blue papers contain about 1½ grains each and the white ½ grain.

A prescription for an ointment was presented containing one drachm of mercury and two drachms of wool fat. One candidate turned in 4 drachms and 18 grains of finished product, another 3 drachms and 38 grains, and in both cases a considerable quantity was left in the mortars.

Another candidate asked for and obtained nitric acid to extinguish the mercury before adding the wool fat. Another used 1 drachm of mercuric iodide (which had been supplied for making Donovan's solution) instead of mercury.

At an examination some time ago a candidate was asked to make 12 pills of alion, strychnine, and belladonna. He took the quantity for 100 pills and divided it into 12. Scores of examples similar to the above could be taken from the results of every examination, but I think I have given enough to account for the percentage of failures being as great as it is.

Such answers show ignorance, carelessness, and lack of reasoning power, yet all of the candidates who wrote these and did the practical work just mentioned believed themselves qualified to act as pharmacists or assistant pharmacists.

What is most needed to raise the percentage of success in our examinations is to rid ourselves of the idea that a knowledge of pharmacy sufficient to entitle a person to practise it with safety to the public can be obtained in a "catch-as-catch-can" manner. It cannot be obtained by simply putting in the prescribed time in the average drug store without systematic study, or by merely attending classes in a school or college of pharmacy. Pharmacy to-day is more complex than ever. The old order of things has changed. New drugs are being used and more complex preparations are in vogue than ever before. The standards of quality for all drugs are being raised, and the tests for purity increased. The pharmacist of to-day is expected, and rightly so, to be able to determine the quality and purity of the substances he uses; thus the demands made upon the student of pharmacy are constantly increasing and more time and study are required than ever before to meet modern conditions—probably more, you may say, than the remuneration of the calling warrants; but that is the fault of business conditions, not of the practice of pharmacy.

THE SAME CHEMICAL ELEMENT MAY HAVE DIFFERENT ATOMIC WEIGHTS.

Until recently it has been assumed that a given chemical element must always possess the same atomic weight, no matter from what mineral it is obtained. The inclusion of the radio-active elements in the periodic system, effected by Fajans and also by Soddy about a year ago, shows that we must assume the existence of elements which vary as much as 8 units in atomic weight, with corresponding variations in their radio-active properties (rays emitted, rate of decay, etc.), without any change in their chemical behavior. In reviewing the subject, *Umschau* observes that this conception was based on indirectly proved, or inferred, properties of the short-lived radio-active elements. Hence it was important to prove by direct experiment that two elements that appear chemically identical may have different atomic weights. The way to such an experimental demonstration was pointed out by Fajans, who concluded that the atomic weight of the lead formed in uranium ores, in the course of millions of years, as the final product of the disintegration of uranium, probably differs from the atomic weight of lead extracted from common lead ores.

This conclusion has now been confirmed experimentally by very careful determinations of the atomic weights of specimens of lead of diverse origins. The research was suggested by Fajans, and was carried out by his former assistant, Lembert, in the laboratory of Prof. Th. Richards in Harvard University, which is celebrated for its accurate methods of determining atomic weights. The atomic weight of lead obtained from uranium ores was found to be 206.6, while ordinary lead gave the distinctly different value 207.1.

The uncertainty attaching to these results is less than 0.02, and is consequently very much smaller than the observed difference. It is notable that these two varieties of lead appear to be identical, spectroscopically as well as chemically.

Analogous considerations make it appear probable that the lead of thorium ores also differs in atomic weight from common lead, but is atomically heavier than the latter. Possibly common lead is a mixture of uranium and thorium lead.

The question naturally arises whether the observed atomic weights of most elements are not merely mean values of the atomic weights of several elements which are chemically identical, and consequently not separable by chemical methods. The study of atomic weights, therefore, is confronted with a wholly new task—the investigation of the atomic weights of elements as affected by their origin—*Scientific American.*

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in THE JOURNAL, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

OTTO RAUBENHEIMER, Brooklyn, N. Y.

Contributed by Wm. Gray, Presbyterian Hospital, Chicago:

No. 218.

FORTIFIED CASTOR OIL.

Croton Oil	1 drop
Castor Oil	4 mils

At one dose.

No. 219.

BLACK DYE FOR SILKWORM-GUT SUTURE.

Extract of Logwood	20 Gm.
Copper Sulphate	8 Gm.
Distilled Water	1000 mils

Boil the white silkworm-gut in sterile water for 30 minutes. After bringing the dye to the boiling point, add the gut and boil for 5 minutes.

Preserve in 95 percent alcohol.

No. 220.

MORHAM'S PLUG.

Sesame Oil,	
Paraffin, of each	40 Gm.
Iodoform	20 Gm.

No. 221.

GELATIN BONE PLUG.

Gelatin	30 Gm.
Water	30 mils
Glycerin	40 mils

Just before using add 2 percent of solution of formaldehyde. This is the formula of a world-famous surgeon.

No. 222.

HORSLEY'S WAX.

Yellow Wax	7 Gm.
Expressed Oil of Almond	1 mil
Salicylic Acid	1 Gm.

Mix at a very gentle heat. Used in brain operations.

No. 223.

UNG. BALSAMI PERUVIANI COMP.

"Bed-sore Ointment."

Balsam of Peru	10 Gm.
Zinc Oxide	40 Gm.
Castor Oil	50 Gm.

Mr. Gray thinks that this is the best-known treatment for bed-sores.

No. 224.

UNG. CAMPHO-PHENO COMP.

Camphor,	
Phenol, of each	16 Gm.
Zinc Oxide,	
Petrolatum, of each	240 Gm.

Triturate the camphor and phenol until liquefied and gradually add the mixture of petrolatum and zinc oxide.

A very efficacious remedy for hemorrhoids.

No. 225.

SPLENDID OINTMENT BASE.

White Wax	20 Gm.
Liquid Petrolatum	70 Gm.
Rose Water	30 mils
Sodium Borate	1 Gm.

Follow directions in Formula No. 116 (J.A.PH.A., March, 1916, p. 309).

No. 226.

ABSORBENT COLD CREAM.

Spermaceti,	
White Wax, of each	30 Gm.
Expressed Oil Almond	240 Gm.
Oil of Rose	1 mil
Oil of Patchouli	1 drop
Sodium Borate	0.3 Gm.
Distilled Water	80 mils

Follow directions in Formula No. 116.

No. 227.

THEATRICAL COLD CREAM.

White Wax	100 Gm.
Ceresin	100 Gm.
Liquid Petrolatum	400 Gm.
Sodium Borate	8 Gm.
Distilled Water	175 mils
Perfume, a sufficient quantity.	

Follow directions in Formula No. 116.

Ceresin is a hard paraffin, melting point about 55° C. It is prepared by purifying ozokerite, or earth wax, a natural mineral wax found in Galicia.

The cheaper ceresin replaces the spermaceti in Formula No. 116 and thus lessens the cost of the cold cream.

No. 228.

KIETH'S MIXTURE.

Heavy Magnesium Oxide	8 Gm.
Magnesium Sulphate	24 Gm.
Glycerin	30 mils
Mucilage of Acacia	30 mils
Peppermint Water, a sufficient quantity,	
To make	180 mils

This is a famous Scotch preparation and is used as a stomachic.

Dose: 4 to 8 mils as necessary.

No. 229.

LAMBERT TREATMENT.

(For Drug and Alcohol Addiction.)

Fluidextract of Hyoscyamus	15 mils
Fluidextract of Xanthoxylum	15 mils
Tincture of Belladonna (15 percent)	30 mils

Dose: Begin with 6 to 8 minims every hour, or until some signs of belladonna intoxication are observed. Every 6 hours increase the specific 2 minims until 14 or 16 minims are being taken every hour, but do not exceed 16 minims. If signs of belladonna intoxication are noticed, such as dilated pupils, dryness of throat, red rash, or a rapidity of speech, or sometimes the beginning of delirium, then the specific must be stopped. When these symptoms have subsided, then begin again in 8 minim doses. Some patients are very susceptible to belladonna and may have to start with 4 minims. (*J.A.M.A.*, Sept. 25, 1909, p. 985.)

No. 230.

ZENKER'S FLUID.

Potassium Dichromate	50 Gm.
Mercuric Chloride	100 Gm.
Sodium Sulphate	20 Gm.
Water	2000 mils

Add 5 mils of acetic acid to each 100 mils of above solution at the time of using, as the finished solution decomposes readily.

Used by pathologists to fix and harden tissue and to prevent breakdown of structure. (Delafield & Prudden, Physiology, p. 1030.)

No. 231.

COMPOUND SOLUTION OF THORIUM.

(For cystoscopic use.)

Thorium Nitrate	100 Gm.
Solut. Sodium Citrate (50 percent)	300 mils
Solut. Sodium Hydroxide (15 percent), a sufficient quantity,	
Distilled Water, a sufficient quantity,	
To make	1000 mils

Make a hot saturated solution of thorium nitrate and gradually add the sodium citrate solution in small portions, shaking very thoroughly after each addition. At first a white, gummy precipitate is formed, which becomes granular and finally dissolves when all of the sodium citrate solution is added.

Now neutralize with solution of sodium hydroxide and finally add sufficient distilled water to make 1000 mils.

Contributed by John K. Thum, German Hospital, Philadelphia:

PHYSIOLOGICAL SOLUTIONS.

The U.S.P. IX contains the formula of such a solution under the title of Liquor Sodii Chloridi Physiologicus, Physiological Salt Solution, Normal Saline Solution.

Besides this, a number of other formulas are in use, which are herewith published. Let it be thoroughly understood these solutions must always be sterilized. This is easily accomplished by boiling in a chemical flask for at least one-half hour. Every precaution must be taken that no contamination takes place after the sterilization. Too much stress cannot be laid on these points.

No. 232.

RINGER'S SOLUTION

Sodium Chloride	9.00 Gm.
Potassium Chloride	0.42 Gm.
Calcium Chloride	0.24 Gm.
Sodium Bicarbonate	0.20 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

Also used for perfusing surviving organs, especially the heart.

No. 233.

LOCKE'S SOLUTION

Sodium Chloride	9.00 Gm.
Potassium Chloride	0.25 Gm.
Calcium Chloride	0.23 Gm.
Sodium Bicarbonate	0.20 Gm.
Glucose	1.00 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

Sometimes ordered without glucose. The latter, which is not essential to the action of the irrigating fluid, is said to increase its efficiency. Therefore it might be named a heart food.

(See Howell's Physiology, p. 562.)

No. 234.

ADLER'S SOLUTION.

Sodium Chloride	0.5900 Gm.
Sodium Bicarbonate	0.3510 Gm.
Potassium Chloride	0.0400 Gm.
Calcium Chloride	0.0400 Gm.
Magnesium Chloride	0.0250 Gm.
Monobasic Sodium Phosphate.	0.0126 Gm.
Glucose	0.1500 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

This solution closely approximates the blood serum in its constitution, and provides a mechanism for maintaining its reaction and for neutralizing acids and alkalies.

Contributed by Wm. Gray, Presbyterian Hospital, Chicago:

No. 235.

FISCHER'S SOLUTION.

Sodium Carbonate, crystals	10 Gm.
Sodium Chloride	14 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 mils

The distilled water should be redistilled in Jena glass. This solution is for intravenous use.

Contributed by the Chairman:

LUTES AND CEMENTS.

These are soft and adhesive compounds, used for joining different pieces of apparatus, so as to exclude air or to prevent loss of liquid or vapor. Lutes are temporary preparations, and cements are more permanent ones.

Prof. S. S. Sadtler of Philadelphia contributed an excellent paper on this subject at the Baltimore meeting of the American Institute of Chemical Engineers, from which the following formulas are taken, as pharmacists in general should become acquainted with some of the type preparations.

(*Sc. Am. Suppl.*, No. 2104.)

WATER-PROOF.

No. 236.

Boiled linseed oil thickened with clay, asbestos, red or white lead, etc., makes a water-proof lute.

No. 237.

Ground flaxseed made into a stiff paste with water is useful as a lute for steam connections, and is easily applied.

Flaxseed meal when added to the water in a radiator will also stop leaks.

OIL-PROOF.

No. 238.

Glue	2 parts
Glycerin	1 part
Water	7 parts

Soften the glue with the water, then liquefy by heat, and add the glycerin. This lute renders corks vacuum tight and stops small leaks of almost anything, except water and steam.

No. 239.

LITHARGE CEMENT.

Glycerin	90 mils
Water	10 mils
Litharge	90 Gm.
Red Lead	10 Gm.

Mix the liquids and thoroughly incorporate the solids to make a stiff putty.

This is one of the best lutes, and is impervious to water, oils and other liquids. Very useful as a "pestle cement."

It takes several hours to stiffen and about a day to set completely.

No. 240.

Solution of Sodium Silicate, about 30° Bé.

Make into a stiff putty with whiting or barium sulphate. When magnesium carbonate is used the setting is so quick that it is hard to employ the mixture.

ACID-PROOF.

No. 241.

Litharge	80 Gm.
Red Lead	8 Gm.
Asbestos, ground	10 Gm.
Boiled Linseed Oil, a sufficient quantity.	

This lute will even stand nitric acid vapors.

No. 242.

BLACK PUTTY.

China Clay,
Linseed Oil,
Gas Tar, equal parts.

Mix intimately.

No. 243.

CHLORINE RESISTANT.

Portland Cement,
Powdered Glass,
Solution Sodium Silicate, equal parts.

The solution should be considerably diluted with water, so as not to set too fast.

PLASTER-OF-PARIS CEMENTS.

No. 244.

According to Sigmund Lehner, the addition of a little borax to the water regulates the setting of plaster and produces hard cements. A mixture of 12 water and 1 saturated solution of borax sets the plaster in 15 minutes. A mixture of 8 and 1 sets in one hour.

No. 245.

MARINE GLUE.

Crude Rubber	1 part
Shellac	2 parts
Pitch	3 parts

Dissolve the rubber in carbon disulphide or oil of turpentine and carefully mix with the other ingredients previously melted.

This lute is applied warm to crevices, etc., and becomes firm, but not brittle when cold.

No. 246.

MACHINISTS' CEMENT.

This consists of white lead or red lead mixed with linseed oil. A more tenacious cement can be obtained by the addition of

Rubber or Gutta-Percha	1 part
Linseed Oil	6 parts

Dissolve the rubber or gutta-percha in sufficient carbon disulphide to produce the consistency of molasses, then mix with the oil and expose the mixture to the air for about 24 hours.

The red lead is added to form a putty. Iron oxide produces a superior cement, which is less brittle.

LEATHER CEMENTS.

No. 247.

American Isinglass,
Glue, equal parts.

Soften in water for 10 hours and boil with tannic acid until the mass is sticky.

The surface of the joint should be roughened and the cement should be applied hot.

No. 248.

Gutta-Percha	8 parts
Pitch	1 part
Shellac	1 part
Olive Oil	1 part

Melt together.

REPORTS OF COMMITTEES

ABSTRACT FROM THE REPORT OF THE COMMITTEE ON TRADE INTERESTS, PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

BY MR. HARRY B. FRENCH, PRESIDENT OF SMITH, KLINE & FRENCH CO.

MR. E. B. PRITCHARD, *Chairman:*

During the year preceding the report presented to the Thirty-eighth Annual Meeting in 1915, the same conditions have influenced the drug market as prevailed during the previous year, and these conditions are of an abnormal character, because of the continuance, during these years, of the European War. The prices of both crude drugs and chemicals continued to climb during the Fall of 1915. The abnormal heights reached were due in part to speculation, in part to feverish haste in buying, and in part to the ignorance or lack of knowledge of the buyers as to sources of supply.

During the last few months, however, there has been a decided change for the better, especially as regards chemicals. The buying apparently has been concentrated to a few and able hands. The primary markets have been sought and therefore to a certain extent the speculator has been eliminated, and finally the production of chemicals along certain lines has greatly increased in this country. The result has been, so far as regards chemicals, that speculators have become very much frightened, especially as there has been considerable talk of peace. They have had visions of the "writing on the wall," and, therefore, they are each trying to get ahead of the other in disposing of their stocks. The losses in many instances are quite heavy, and even at greatly reduced prices a market is not readily obtainable. It is difficult, if not impossible, to force the sale of goods for which there may not be an active demand, and which, although offered at very much lower than the supposed market prices, are still very much above the normal.

There are many, and we are inclined to agree with them, who think that another opinion may justifiably be held as to future conditions. Many thinkers believe that peace is not possible for a long time to come; their conclusions are, Germany will not accept such terms as the Allies are willing to offer, until the latter have shown military superiority. If, then, the war is to continue, as was predicted by Lord Kitchener, for three years, it means that this terrible struggle will probably still be going on in the latter part of the year 1917. It is with the utmost reluctance that men base their business operations on the continuance of a bloody struggle of this character, but it is necessary to take all circumstances into consideration in forming opinions and deciding upon actions. The present period of declining prices, which has been in force for the last three or four months, and has been accentuated during the last six weeks, is being prolonged by the fact that it is impossible to ship goods to Russia, for the reason that all available space, for shipments to Archangel, has been taken up, upon the opening of navigation, by the Russian Government in order to replenish their imperative wants. It is believed, however, that there will be space available early in July and that there will be large shipments to that important buyer. It therefore might happen that weak speculators may have considerably reduced their holdings, and there may arise a large demand for chemicals and a very small supply be found.

The effect of this war on botanicals was not so pronounced at first, but as time went on the shortage produced by the cutting off of some products from the commerce of the world became greater and greater. The questions of finance and transportation also played their parts. Nearly all stocks of botanicals that were bought before the war have been exhausted, and it is to be feared that the imperative needs of manufacturers during the next twelve months will be but imperfectly filled from the accessible sources of supply.

The great corporations, having hundreds of millions invested in steel, were slow in taking up the question of the utilization of the waste from their coke ovens, especially as this involved a very heavy expenditure of money in changing those coke ovens so as to advantageously secure the waste. When the work was undertaken, it was pushed forward vigorously and the production is now on a very large scale. This has already seriously affected the price of phenol, which is now procurable in a large way, in the form of white crystal, U.S.P. quality, at 75 cents per pound. It will also at a later time increase the production and lower the costs of all those products belonging to the numerous lines that are obtainable from the waste of coke ovens, and that are important enough to justify the investment of capital necessary to develop them.

One of the products, however, that does not seem to have engaged proper attention, or, if it has, the investigation has not been successful, is benzoic acid *ex* toluol. A couple of years before the war an importation was made into this country of some 40 tons of benzoic acid *ex* toluol at a laid-down cost, duty included, of about 19 cents per pound. The nominal market price to-day is $7.25, and it would not be possible to buy 5000 pounds of benzoic acid in the United States to-day at any price. The season is now coming on when there will be a great demand for sodium benzoate, and it looks as if considerable difficulty might arise in furnishing the necessary supplies.

Shipments to this country and to other countries in 1915 of citrated lime were very large, in fact, much larger than normal shipments. The capacity of the manufacturers for making citric acid has not been, we think, considerably enlarged and therefore, although working their capacity to the utmost, they have not been and will not be able to fill the speculative demands that were made upon them. The American manufacturers, however, have steadfastly pursued the policy of limiting their deliveries to their regular customers for their normal supplies, and of late have been demanding a guarantee that the goods, so delivered by them, shall not be exported from this country. It unfortunately happens at times that conditions, such as these, are accepted and evaded by selling to a third party, who will turn it over to a fourth party, who exports it. It is recognized, of course, that this method is an indirect way of violating an agreement. The manufacturers' price to-day is 67 cents per pound, which is about 25 cents above a normal price. The price for export varies from 75 to 80 cents per pound, with very little obtainable for that purpose. The earlier part of this year citric acid was sold for export, as high as $1.00. We may venture to make the statement that citric acid will be obtainable for all legitimate wants in this country at the existing price of 75 cents per pound, in barrels.

Quinine during the height of speculative excitement last fall sold as high as $2.50 per ounce in a small way and $2.25 per ounce in a large way. Many hundreds of thousands of ounces changed hands. Every holder who had a small stock, throughout the country, rushed his goods to the market to take advantage of these extraordinary high prices. Towards the end of the year and the beginning of the present year, owing to the re-organization in the methods of buying, the placing of orders at Rotterdam and Amsterdam with first hands greatly decreased the foreign demand and quinine began gradually to decline. Later, in 1916, the decline became more rapid, although in the meantime manufacturers in this country had advanced their price to 75 cents per ounce, as the cost of bark had increased. In the meantime, the stock of quinine in London had been cut down to about half of what it was a year ago, and, if the use of quinine continues on as large a scale, it looks as if at the end of 1916 the stock of quinine in London would become so reduced as to be no longer of importance. In the meantime, holders of considerable stocks of quinine, who had thought that there was no roof to the price, have been pressing their product on the market and we have been told that offers have been made at a price as low as 50 cents per ounce. The manufacturers' price continues to-day at 75 cents in 100-ounce tins. It must be remembered that it was customary to import into this country several million of ounces of quinine from Germany every year, and while there have been importations of quinine since the war, they have been of comparatively small amounts. Taking also into consideration the advanced cost of bark, and the produced stocks in London, it would not be surprising if the necessities of the warring nations, compelled to again go into the markets of the world for large amounts of quinine, might force very much higher prices.

U.S.P. alum, with potash base, was for a long time almost unobtainable, but during the past year large shipments have been brought from Japan, which country is now producing an increasing number of chemicals. The present price of powdered potash alum, U.S.P., in barrels, is 8½ cents per pound, as compared with 5½ cents per pound for ammonia alum. We understand that ammonia alum will be official in the next Pharmacopœia.

Antipyrine was imported before the war in large quantities at something less than $2.00 per pound. During the past year it advanced to as high as $60.00 per pound. It is now in somewhat better supply and can be obtained in quantity at about half that.

The demand for caffeine alkaloid has been very large. Certain manufacturers must have it, whatever the cost, and it has sold as high as $18.00 per pound, in quantity. It seems somewhat extraordinary that this is so, because tea fluff, from which caffeine has been manufactured, has not advanced proportionately. The explanation probably is, that there are but few manufacturers of caffeine and they have taken a natural advantage of the market conditions and the large export demand.

Owing to the large export demand, and the high cost of its base material, chloroform was advanced at one time to 70 cents. This has been followed by a reaction and, at this writing, the manufacturers' price in 1000-pound drums is 50 cents per pound.

Epsom salts at one time advanced so largely that it sold at 7 cents per pound in England, and thereafter could be exported from this country at a handsome profit. The market price to-day in barrels is 3¼ cents per pound for the U.S.P. quality.

Years ago a very fine quality of asafetida could be bought for as low as 10 cents per pound. In order to increase their profits, the natives of Southern and Central Asia, where the drug is gathered, began to ship stones and dirt with a small admixture of asafetida. On the enactment of the Federal Food and Drugs Act in 1906, the law began to be enforced, requiring that the ash content of the asafetida should not be over 10 percent and that its solubility should be 50 percent or over. For a long time it was very difficult to get asafetida of this quality, but finally the market adjusted itself to those conditions, though it considerably advanced the price. Recently, however, there have been no shipments from the primary market, owing to conditions due to the war, and to-day hard asafetida is worth $1.00 to $1.10 per pound, in quantity. There are no immediate prospects of relief.

Lycopodium is one of those Russian articles that is at the moment almost unobtainable. Before the close of navigation in 1915, it was reported that two hundred ships left Russia, but were caught in the ice pack and only began to arrive some time in May. Large quantities are afloat on these vessels. The stock of lycopodium at the moment in this country is exceedingly small and it cannot be obtained in large quantities. For such as is procurable, $4.00 is asked.

The same remarks apply to Russian cantharides as to lycopodium and at this writing pure powdered Russian cantharides would bring $8.50 per pound.

As is well known, the price of all potash preparations has been very seriously advanced, because of the inability to obtain muriate of potash from Germany. The production, however, of potash in the United States is advancing. Certain enterprising citizens are gathering kelp on the coast of California, as ingenious machinery has been invented, and are now producing potash of satisfactory quality on an increasingly large scale. In due time we shall be able to supply a large portion of the demand and we hope the producers will be given sufficient protection so to prevent their industry from being destroyed at the termination of the war.

Licorice is very largely used in plug tobacco. The largest supply of the root formerly came from Mesopotamia. As our readers know, there has been severe fighting in that region between the two rivers—Tigris and Euphrates—and the region throughout there, and shipments have been practically stopped. The large manufacturers in this country are accustomed to bring this root in shipload lots, and it is found now very difficult to obtain sufficient supplies from other sources. It is thought that in a few months arrangements may be made whereby shipments may be had from Russia, which will relieve the situation. In the meantime the root and the extract of the root have very largely advanced in price, the advance being from 200 to 300 percent.

Sugar of milk at this writing is very difficult to obtain in sufficient quantity for the ordinary demands of this market. This is due to the fact that the largest manufacturing establishment was practically destroyed by fire, and because it is impossible to import milk sugar from Holland. We believe that when the factory that was burned down has been rebuilt, the position will be very much improved, although we can scarcely expect normal prices for milk sugar until after the war.

Owing to the very heavy advance in the price of sugar and the heavy demand, saccharin has very largely advanced in price, until to-day $15 is a fair price, in quantity.

Among the important chemicals that have sold at very high prices are salicylic acid and sodium salicylate. Thousands of pounds were shipped from this country and sold in England as high as $4.00 per pound. During the past year statements have been made repeatedly that supplies would be increased, and, therefore, we might expect very greatly reduced prices. As a matter of fact, during the last few months prices have slightly declined, because the foreign demand has been somewhat reduced, but there is apparently now a revival of such demand and we may expect for the next few months that prices will be firmly maintained. The manufacturers have continued to supply their customers in very moderate quantities at about $2.50 per pound.

On account of the very large export demand, the manufacturers of borax in this country have found it necessary to advance their price and are very much behind in their deliveries.

Paris green has been very greatly advanced because of the increased cost of blue vitriol, of which about two pounds is used to one pound of Paris green, and the increased cost of arsenic. It is probable that only small quantities have been laid up in stock by the manufacturers, and if there is a large demand this year, it may be found that it will be difficult to fill the orders.

Blue vitriol at one time sold as high as 22 cents, but recently manufacturers have offered carload lots at 15 cents per pound.

The United States Government now places very stringent regulations upon the importation of cannabis indica, following the policy of the English government, who levy a heavy tax of about $1.50 per pound on every pound produced in India. It is rather interesting, however, to know that the government is encouraging the cultivation of cannabis indica in this country.

Mercury has had a very interesting career. The normal price is about $38 per flask. The early part of this year it advanced to $325 per flask because of the demand by the manufacturers of ammunition. As it was found impossible to obtain sufficient supplies of this in the open market, an arrangement was made by the British Government, for whom the munitions were being manufactured, to permit the sale by English holders to American manufacturers of munitions. As this has lessened the market demand, the price in a few weeks declined from $325 to about $80 per flask. Mercurials advanced and declined proportionately.

Glycerin advanced as high as 70 cents, but is now selling at about 55 cents per pound.

Dalmatian insect flowers are not obtainable. Japanese insect flowers, however, are of equal quality and can be obtained of 100 percent purity powdered, at about 45 cents per pound.

Naphthalene has largely advanced, and at one time this year the largest manufacturer in this country refused to accept further orders. The present market price in barrels is 13 cents per pound.

Norwegian cod liver oil was bought up by the German Government and the price advanced from a normal price of $20 per barrel to $160 per barrel.

Cut dog-grass is not an article of importance but it seems to be needed by certain parties in this country. The price advanced from a normal price of about 10 cents per pound to $1.50 per pound for the fine cut.

Imported hellebore root is almost unobtainable. A normal price is about 8 cents and the present price for powdered is about 45 cents per pound.

Salol advanced at one time to about $12, but is now being manufactured in increasing quantities in this country and is steadily declining.

Zinc oxide, U.S.P., advanced from a normal price of 8 cents to 35 cents per pound, but it has now a declining tendency, and we may expect lower prices from now on.

SUB-COMMITTEE REPORT ON U. S. PHARMACOPŒIA.*

On the eve of changes, additions and deletions in our official standards such as occur when a new pharmacopœia becomes official, it does not seem advisable to bring forward a lengthy report from the Chemists Sub-committee. U.S.P. standards are for all practical purposes part of the law of the land and when they require attention other matters must wait.

The ninth revision of the United States Pharmacopœia is practically ready for distribution and will, we are told, become official September 1, 1916.

Most of our members who are accustomed to have their products in use in the treatment of disease within a few days, or, at the most, a few weeks after compounding, will find this interval between date of issuance and date of becoming official—about three months—long enough to familiarize themselves with the more important changes and added requirements. Nearly all of our members in respect to the time required for changes are in much better position than houses most of whose products go through two, three or four stocks before reaching the person who controls their use by the consumer. It is advisable that every member procure immediately a copy of the new pharmacopœia and scrutinize it closely and then make at once any changes that may become necessary in stock or labels. The changes in chemical tests, assays and standards as made by the new book are rather numerous.

One change that is of very general interest is the introduction of the word "mil" as a new name for what has heretofore been called "cubic centimetre." The term "cubic centimetre" is discarded: we urge that our members be among the first to introduce this new term to our medical friends: just write or speak of "mils" instead of "cubic centimetres" and the change is made. The pharmacopœia will also give an official abbreviation for many of its titles: this desirable addition should be used at every opportunity.

Another feature of interest is the listing under crude drugs of the preparations containing that drug.

A chapter on sterilization is included in Part II of the new book. A more general use of sterilization in making pharmaceutical preparations will increase materially the standing and reputation of these articles in the eyes of the latter-day physicians.

Our meeting can with profit give considerable time to a discussion of the new pharmacopœia.

Since there will be considerable interest manifested in drug and medical circles in the new revision it is desirable that our members act promptly in giving our medical friends correct and concise information concerning these changes, additions and deletions. Our association may well consider preparing a booklet giving such information for distribution by our members.

ASPIRIN.

A large quantity of inert mixtures of powdered substances such as milk sugar, alum, salicylic acid, starch, etc., have been sold during the past year as acetyl-salicylic acid either in powder or in tablets.

Through the efforts of the drug inspectors of the Bureau of Chemistry the market has been largely cleared of this fictitious article, but it must be remembered that continued watchfulness is the only safe procedure.

Mr. J. P. Snyder of the Norwich Pharmacal Company presents the following identity and purity tests and your committee recommends very close scrutiny of all purchases of aspirin.

TESTS FOR ASPIRIN.

At present, a careful examination of this chemical is essential, as the scarcity of the product, and the corresponding high price, has made it liable to adulteration by unscrupulous manufacturers.

Acetyl-salicylic acid is prepared commercially by treating salicylic acid with an excess of acetic anhydride at 150° C. under a reflux condenser. It occurs in colorless crystals and in a white crystal powder; is odorless and has a sweet taste.

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* Presented at ninth annual meeting of American Association of Pharmaceutical Chemists, Cedar Rapids, Ia., June 1, 1916.

Identity Test—1 gramme of aspirin boiled with 10 Cc. of a 10 percent sodium hydroxide solution for two minutes will yield a white precipitate upon addition of sulphuric acid. This precipitate should, after thorough washings, have a melting point of 157° C. and should answer the ferric chloride identity test of the U.S.P. VIII., for salicylic acid. The filtrate from the salicylic acid should have a strong odor of acetic acid. The melting point of aspirin appears to vary more than is customary with organic chemical compounds. Emery and Wright, of the Association of Official Agricultural Chemists, Bulletin 162, Bureau of Chemistry, find the melting point of aspirin to be from 130½° C. to 131° C.

In the past year we have examined eleven samples of this product, ten of which had a melting point of 135° C. while one we found to be 133° C. When it is remembered that aspirin will decompose before it melts, we have the probable explanation for the difference in the melting point. The length of time it is heated, etc., also probably affects the melting point. Emery and Wright recommend that the rate of heating be such as will give a rise of 1° C. per minute. The aspirin that would melt higher than 135° C. or lower than 130° C. we would, however, look upon with suspicion.

Test for Free Salicylic Acid.—Five Cc. of a 2 percent solution of aspirin in alcohol diluted with 20 Cc. of water should not be immediately colored violet upon the addition of one drop of ferric chloride test solution. *Caution.*—The solution should be prepared cold and must be fresh; not more than one drop of ferric chloride test solution should be used, as there is danger, due to the acidity of the latter, of breaking down the aspirin and getting violet color from the liberated salicylic acid.

Test for Free Acetic Acid.—Aspirin should be odorless and particularly have no odor of acetic acid, indicating absence of this acid.

Test for Hydrochloric Acid and Chlorides.—A five percent solution in alcohol mixed with a few drops of nitric acid should not be affected by the addition of silver nitrate test solution.

Test for Sulphuric Acid and Sulphates.—Five Cc. of five percent solution in alcohol diluted with 20 Cc. of water, and acidified with hydrochloric acid, should not be affected by the addition of barium chloride test solution.

A solution of the salt one in twenty should respond to the heavy metals test of the U.S.P. VIII.

Resinous Impurities.—An alcohol solution evaporated to dryness in a dish protected from the dust should give a perfectly white crystalline residue.

Phenol.—If one gramme of aspirin be dissolved in an excess of sodium carbonate test solution, the liquid agitated with an equal volume of ether, the ethereal solution allowed to evaporate spontaneously, the residue should be free from odor of phenol.

Readily Carbonizable Organic Impurities.—On treating about five grammes of aspirin in a test tube with 10 Cc. of concentrated sulphuric acid, no odor should be imparted to the latter.

Estimation of Acetyl-salicylic Acid.—May be estimated by boiling with sodium hydroxide and titrating excess of sodium hydrate, using phenolphthalein as indicator. One gramme of the aspirin is boiled with 15 Cc. of normal sodium hydrate for about five minutes, a few drops of phenolphthalein added; tenth-normal hydrochloric acid is run until the pink color is destroyed.

Allen's Commercial Analysis, volume 3, page 504, 4th edition, gives the following method for the estimation of acetyl-salicylic acid, which we have found to give excellent satisfaction in our laboratories. One gramme of the sample is weighed into a 200 Cc. flask, dissolved in a small quantity of alcohol, a drop of phenolphthalein solution added and titrated quickly as possible with tenth-normal potassium hydroxide solution, volume required being noted. To the liquid a volume of tenth-normal alkali, about five Cc. in excess of that already used, is added, the solution boiled for five minutes, an excess of alkali titrated with tenth-normal acid. The total volume of tenth-normal alkali required will be double that used in the cold neutralization, if the sample is free from salicylic or any other acid. If the sole impurity is salicylic acid, every $^1/_{10}$ percent will decrease the total amount of alkali absorbed by one gramme, 0.38 Cc. below 111.08 Cc.—the volume required by the pure acid. One Cc. of cold tenth-normal potassium hydroxide solution neutralizes 0.0180064 grammes, whilst the same volume of the boiling alkali reacts with 0.0090032 grammes of acetyl-salicylic acid. Since cold potassium hydroxide slowly hydrolizes acetyl-salicylic acid, the cold titration must be effected quickly, or erroneous results will be obtained.

When combined with salts that interfere with the estimation by the above titration method, may be estimated colorimetrically, after it has been broken down, by the addition of ferric chloride and compared with definite amounts of aspirin treated in a similar manner; this may also be used to estimate the amount of salicylic acid present in aspirin, or to ascertain to what extent it has become broken down.

J. P. Snyder.

Analytical Laboratories of the Norwich Pharmacal Company.

INTERESTING ALKALOIDS AND GLUCOSIDES.

According to the Pharmaceutical Journal and Pharmacist of June 5th, investigation work on the drugs and poisonous plants of South Africa has been proceeding for some time at the Imperial Institute, and in the current number of the *Bulletin of the Imperial Institute* is published a summary of these investigations as far as completed.

The results obtained are interesting and valuable. Molteno disease, a cattle and horse disease prevalent in certain parts of the Union of South Africa, has been definitely traced to the presence of a poisonous alkaloid in a plant eaten by the animals. This plant is *Senecio latifolius,* a near relative of the common groundsel. "Cape slangkop," a plant belonging to the lily family, which causes cattle poisoning in other districts of the Union, contains a poisonous glucoside similar in action to that found in the common foxglove. Among other South African plants of which the properties are still being investigated at the Imperial Institute are the roots of the "Ntsema," which are said to be extensively used by the natives employed on the Witwaters Rand mines in the preparation of an intoxicating drink known as "kali."

GUM TRAGACANTH IN PERSIA.

According to a report by the United States Consul at Teheran, the various species of Astragalus, known in Persia as "kevin," from which gum tragacanth is obtained, grow on the mountain ranges which surround the Persian plain. The bushes producing the gum grow to a height of 2 feet. In the spring, when the sap rises, parts of the branches are cut away, thereby allowing the sap to flow out, which coagulates within a few hours on the surface of the stalk. The price of gum tragacanth has increased 5 to 10 percent since the outbreak of hostilities in Europe.

The principal Persian markets for gum tragacanth are Hamadan, Shiraz, Kerman, and Kermanshah. From 150 to 200 tons are exported annually from Hamadan alone. Before August 1st, 1914, half of this amount was shipped to Russia and the other half to America and the United Kingdom, but since that date the amount shipped to Russia has been reduced to one-fifth, the other four-fifths going to America and the United Kingdom.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

DETROIT.

The Detroit Branch of the American Pharmaceutical Association met May 19th, at the Wayne County Medical Society Building. After a very enjoyable banquet, the meeting was called to order by President Scoville.

William A. Hall reported for the Nominating Committee, suggesting the following names for officers for the coming year: For president, F. F. Ingram, Jr.; for vice-president, Prof. J. O. Schlotterbeck; for secretary, O. W. Gorenflo; for treasurer, C. F. Mann; for chairman of the program committee, W. M. Chase.

On motion of Mr. Webster, a vote was taken closing the nomination. The above mentioned officers were then elected by unanimous vote. On request of Mr. Mann, the question of the disposal of the funds left over from the American Pharmaceutical Association meeting in Detroit was discussed.

It was moved by Mr. Hall and supported by Mr. Webster that the Branch note a credit of $428.51 to be held by the Treasurer subject to action of the Detroit Branch.

Carried.

Moved by Mr. Mason, supported by Mr. Mann, it was voted to pay $5.00 to the employees of the building.

On motion of Mr. Mann a vote was taken instructing the officers for the coming year to have a notice sent out with the announcement of the next meeting, requesting that a subscription of one dollar be paid by each Branch member yearly.

The regular program was then taken up.

The first speaker was E. A. Patton of the Liquid Carbonic Company. Mr. Patton gave a very interesting and instructive talk on the soda fountain. He finds much loss of business and damage to fountains due to neglect, the service of the plumber being often required from the lack of proper cleaning.

M. E. Keyes of the Detroit Creamery Company was the next speaker. Mr. Keyes, having spent many years in the retail drug business, previous to embarking in the ice cream business, was able to give expert advice on the subject of ice cream at the soda fountain.

A vote of thanks was extended to the speakers.

The President-elect then took the chair.

William A. Hall moved that a vote of thanks be extended the retiring officers.

A. A. WHEELER, *Secretary.*

INDIANAPOLIS.

The June meeting of the Indianapolis Branch of the American Pharmaceutical Association was held at the Chamber of Commerce Building, Monday, June 5th. Frank C. Carter, president, presided. A large percentage of the members were present at this meeting. F. R. Eldred was elected member of the Council for the Indianapolis Branch and C. B. Jordan was elected delegate to the Indiana Pharmaceutical Association.

F. R. Eldred spoke at length on "Some Recent Developments in our Knowledge of Nutrition," pointing out that as a result of the developments during the last few years many of the generally accepted theories bearing on the problem of nutrition would have to be completely revised. In the future, it would be necessary to speak of amino-acid requirements instead of protein requirements, as it had been shown in the case of several of the amino-acids that there was a certain minimum requirement and that any deficiency could not make up by an excess of other amino-acids. The composition of the various proteins was therefore of primary importance. The study of nutritional deficiency diseases, such as beriberi, pellagra and scurvy, as well as the extensive experiments on animals with diets composed of pure substances, has led to the discovery that in addition to the well-known constituents of food stuffs, certain principles of unknown composition were necessary in order to promote growth or maintain nutrition. These substances were known as food accessories, or vitamines, and, although our knowledge of these substances was still very limited, it seemed to have opened an important and fruitful field for research.

Dr. A. D. Thorburn presented some notes on "Solid Extracts," calling attention to the variation in moisture, ash and acidity of these products. He suggested that some method of standardizing solid extracts be investigated.

It was decided that the Local Branch extend to the American Pharmaceutical Association a cordial invitation to hold its 1917 meeting in Indianapolis.

Frances E. Bibbins, *Secretary.*

NASHVILLE.

The regular monthly meeting of the Nashville Branch of the American Pharmaceutical Association was held in joint session with the Nashville Drug Club, June 15, and D. J. Kuhn of the latter organization presiding.

Treasurer D. S. Sanders reported the financial condition of the Club as encouraging. William R. White reviewed a recent contribution by M. I. Wilbert, in which the writer maintained that alcohol tended to increase the poisonous action of phenol, when given as an antidote, and was therefore not the efficient antidote some contend it is. Mr. White urged members to acquaint themselves with antidotes, as such information is highly important in case of accidents.

A resolution was passed commending the action of Spurlock Neal Company, in publishing a full page advertisement in a local daily paper advising the public that the higher prices exacted by the retail drug trade was necessitated by the present market conditions.

The members were advised of the necessity of renewing the various licenses expiring July 1, including also the renewal of Board of Pharmacy registrations.

Dr. J. O. Burge called attention to the forthcoming U. S. Pharmacopœia and National Formulary, both of which become official September 1, and will be ready for distribution some time during July. He also referred to a number of deletions and additions and that sodium salts may in some preparations be used for corresponding potassium salts, citing effervescing solution of magnesium citrate, in which the carbon dioxide may be generated by sodium bicarbonate.

The Nashville Drug Club then elected officers as follows: President, D. J. Kuhn; vice-presidents, Ira B. Clark and C. C. Young; treasurer, D. S. Sanders, and secretary, E. F. Trolinger.

Dr. E. A. Ruddiman, J. B. Sands and E. F. Trolinger were named delegates to the Tennessee Pharmaceutical Association. A boat-ride up the Cumberland was decided on for about July 17, when the two Associations will hold a joint meeting and an outing.

William R. White, *Secretary.*

POLIOMYELITIS GERM SAID TO HAVE BEEN ISOLATED.

The New York City Health Department announced on July 11, that success had been attained in the long effort to isolate the germ of poliomyelitis. No details were given, but it was stated that a further report would be made in a few days.

Just as fear possesses the people, when a disease of this kind is prevalent, so also news items, that may be expressed hopes, find their way into print. The telegraphic report has come that a leading German scientist (name not given), who for years has been studying infantile paralysis in Scandinavian countries, where the disease is periodically epidemic, is said to have discovered a cure, which has been successfully tested. The report states that the discovery has been closely guarded in Germany, that the discoverer consulted with the German Government, and that a submarine, now under way, is carrying some of this cure to the United States.

No details regarding the nature or form of the cure are given.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 25.

PHILADELPHIA, PA., June 12, 1916.

To the Members of the Council:

Motion No. 49 (*Election of Members; Applications Nos.* 202 *to* 249 *inclusive*) has received a majority of affirmative votes.

The following communication has been received from Jose P. Alacan, of Havana, Cuba.

Council of the American Pharmaceutical Association:

GENTLEMEN:

We, the undersigned Cuban Members of the American Pharmaceutical Association, in accordance with Article 1 of Chapter XII of the Constitution, do hereby petition the Association for permission to establish in Cuba a local branch to be known as the Cuban Branch, whose objects and aims shall be the same as expressed in Article 1 of the Constitution, said Branch to be subject to the same regulations and to enjoy the same privileges as the Branches established in the United States: Dr. Estrella Delgado, Francisco Remirez, Edwardo G. Faundo, Jose Guillermo Diaz, Miss Rosa Lagomasino, C. J. Goltz, Dr. F. Herrera, Jose P. Alacan, Elisa M. Fortun, Dr. Rogelia Ramirez, Dr. M. Rebustillo, Jose Capote, A. Bosque, Augustin Ortiz and Felipe Pazos Boada.

Do you favor granting the above petition? It will be known as *Motion No.* 50 (*Petition to form Cuban Branch, A. Ph. A.*).

The following communication has been received:

CAMDEN, N. J., June 9, 1916.

Council of the American Pharmaceutical Association:

GENTLEMEN:

The members of the American Pharmaceutical Association who were fortunate enough to hear the address of Dr. S. Solis Cohen at the Boston meeting retain the most pleasant recollection of that event. The approaching meeting of the American Pharmaceutical Association and the publication of the United States Pharmacopœia, Ninth, and its promulgation as a legal authority from September 1st, are events occurring all about the same time.

It appears to be a most favorable opportunity for another address to the American Pharmaceutical Association by Dr. Cohen and I, therefore, move

That the Council of the American Pharmaceutical Association extend to Dr. S. Solis Cohen an invitation to address the meeting of the American Pharmaceutical Association at Atlantic City, on the subject of The Pharmacopœial Revision from a Medical Standpoint, or any other title that he may consider more appropriate.

Very truly yours,

GEO. M. BERINGER.

Do you approve the above motion? It will be known as *Motion No.* 51 (*Invitation to Dr. S. Solis Cohen to Address Atlantic City Meeting of A. Ph. A.*).

The Secretary of the Council has received the following communication from General Secretary Day:

"I have received a bill from Lloyd Brothers, amounting to $188.74, and covering the cost of handling and storing as well as sorting and listing the publications of the Association turned over to the Lloyd Library by action of the Association. By far the largest lot of these publications were the old proceedings and back numbers of the JOURNAL shipped from Scio in 1914, and, as you may recall, I made a visit to Scio at that time and found that during Professor Beal's absence, someone had removed the inventory of these proceedings and JOURNALS which he had prepared and it was therefore necessary to have the Lloyd Library make an inventory of the publications. The bill also includes expense of shelving and other arrangements for suitably caring for this reserved stock, and subsequently, we sent the stock of the 1912 Year-Book from Columbus and the 1913 Year-book from Easton, Pa., which was similarly cared for.

" Our present budget provides $200.00 for miscellaneous expenses, of which about $40.00 had already been expended when this bill from Lloyd Brothers was received. With the consent of the Chairman of the Finance Committee I have charged this Lloyd bill to the item of miscellaneous expenses and with the Chairman's approval I now offer a motion which is seconded by Professor Koch that

$100.00 additional be appropriated for item No. 4, Miscellaneous, of the 1916 Budget, in order to take care of this expense. This will leave a balance in item No. 4 of about $70.00 which will probably see us through the year. Please place this motion before the Council."

Motion No. 52 (*Additional Appropriation of* $100 *for Item No.* 4, *Miscellaneous,* 1916 *Budget*). Moved by W. B. Day, seconded by J. A. Koch, that $100 additional be appropriated for Item No. 4, Miscellaneous, of the 1916 Budget.

Motion No. 53 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 250. Oswald Chapman, P. O. Box 217, "Farmacia Nacional," Central Ave and Santa Ana Park, Panama City, Rep. of Panama, rec. by Wm. B. Day and Bolivar Jurado.

No. 251. George Lawrence Crain, U. S. S. Des Moines, care Postmaster, New York, N. Y., rec. by W. B. Day and J. F. Rupert.

No. 252. Henry George Becker, Pekin, Ill., rec. by H. M. Whelpley and J. W. Mackelden.

No. 253. Sylvius Ketcham, 1815 Third Ave., New York, N. Y., rec. by Robert L. Lehman and Hugo Kantrowitz.

No. 254. Harold B. Chatfield, Hospital Steward, U. S. S. Denver, care of Postmaster, San Francisco, Cal. rec. by Wm. B. Day and J. F. Rupert.

No. 255. James Linwood Sutton, Albemarle, N. C., rec. by J. G. Beard and E. V. Howell.

No. 256. Anthony Di Cosola, 740 Independence Boulevard, Chicago, Ill., rec. by Wm. B. Day and C. M. Snow.

No. 257. Leroy Forman, 1752 N. 60th St., Philadelphia, Pa., rec. by Charles H. LaWall and Ivor Griffith.

No. 258. Mrs. Margaret Cramer Bell, North Main St., Hubbard, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 259. C. E. Craycroft, 814 N. Crock St., Sherman, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 260. Z. E. Marvin, Main and Akard Sts., Dallas, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 261. J. W. Graham, Austin, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 262. Tom J. Snell, Cooper, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 263. John W. Covey, 810 Main St., Fort Worth, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 264. Walter B. Man, Decatur, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 265. Cecil Lister Jenkins, Italy, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 266. C. R. Baxendale, Mingus, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 267. Gaston H. Wilder, 502 23rd St., Galveston, Texas, rec. by R. H. Walker and J. T. Coulson.

No. 268. Tom O. Stell, Irene, Texas, rec. by R. H. Walker and E. G. Eberle.

No. 269. Wm. A. Hawkins, Star, Texas, rec. by R. H. Walker and E. G. Eberle.

No. 270. Frank Gunmar Braconier, Ph.G., 32 Churchill Ave., Campello, Mass., rec. by Howard H. Smith and Theodore J. Bradley.

No. 271. Percy Maurice McCormick, Ph.G., New Castle, New Brunswick, rec. by C. Herbert Packard and Theodore J. Bradley.

No. 272. Annabel Carter, Ph.G., Crescent Park, Waltham, Mass., rec. by Theodore J. Bradley and John G. Godding.

No. 273. Ralph Carpenter Root, Ph.G., 89 Canal St., Brattleboro, Vt., rec. by John G. Godding and Theodore J. Bradley.

No. 274. Emile Joseph Ouellet, Ph.G., 28 William St., Cambridge, Mass., rec. by Elie H. LaPierre and Theodore J. Bradley.

No. 275. Byrd Oscar Powell, Bell Hospital, Rosedale, Kansas, rec. by L. E. Sayre and G. D. Havenhill.

No. 276. John Eitel Guess, Kentwood, La., rec. by Philip Asher and Wm. B. Day.

No. 277. Henry Welsh, Magnolia and St. Andrew Sts., New Orleans, La., rec. by Philip Asher and Wm. B. Day.

No. 278. Frank Godfrey Rieger, Donaldsonville, La., rec. by Philip Asher and Wm. B. Day.

No. 279. John Russell Graham, 145 N. Tenth St., Philadelphia, Pa., rec. by Charles H. LaWall and Leroy Forman.

No. 280. Alfred Melhado, 5 Ninth St., Panama, Panama, rec. by Bolivar Jurado and Wm. B. Day.

No. 281. Myron B. Kauffman, B.Sc., Station B, R.F.D. No. 7, Columbus, Ohio, rec. by Anna G. Bagley and Geo. B. Kauffman.

No. 282. Zeb W. Rike, Farmersville, Texas, rec. by E. G. Eberle and C. A. Duncan (A. Ph. A. Prize, Baylor University, College of Pharmacy).

No. 283. Enos Alexander Hilterbrand, 4011 Colonial Ave., Dallas, Texas, rec. by W. H. Cousins and E. G. Eberle.

No. 284. Arno A. Coleman, Care of Greenwood Drug Co., Greenwood, S. C., rec. by E. G. Eberle and Charles H. Huhn.

No. 285. William Farquhar, S. W. Corner Public Square, Bucyrus, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 286. Richard Matthew Dumphy, U. S. S. Castine, Care of Postmaster, New York, rec. by Wm. B. Day and J. F. Rupert.

No. 287. Walter R. Jarrett, 308–309 Patterson Bldg., Oklahoma City, Okla., rec. by C. H. Stocking and Claud Aikman.

No. 288. Fred W. Metzger, 230 West Carpenter St., Springfield, Ill., rec. by Wm. Gray and Wm. B. Day.

No. 289. Walter H. Wyszynski, 8737 Commercial Ave., South Chicago, Ill., rec. by Wm. Gray and Wm. B. Day.

No. 290. Henry Kendall Mulford, Jr., 212 Pembroke Ave., Wayne, Pa., rec. by Paul S. Pittenger and Robert P. Fischelis.

No. 291. Christian Schertz, 1341 Elysian Fields Ave., New Orleans, La., rec. by Robert F. Grace and Philip Asher.

No. 292. William Alexander Wallace, 166 Nissley St., Middletown, Pa., rec. by Charles H. LaWall and Ivor Griffith.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 26.

Philadelphia, Pa., July 3, 1916.

To the Members of the Council:

Motions No. 50 (*Petition to form Cuban Branch, A. Ph. A.*), *No.* 51 (*Invitation to Dr. S. Solis Cohen to Address Atlantic City Meeting of the A. Ph. A.*), *No.* 52 (*Additional Appropriation of* $100 *for Item No.* 4, *Miscellaneous,* 1916 *Budget*) and *No.* 53 (*Election of Members; Applications Nos.* 250 *to* 292, *inclusive*) *have each received a majority of affirmative votes.*

Francis E. Bibbins, Secretary, advises that at the June (1916) meeting of the Indianapolis Branch, A. Ph. A., Frank R. Eldred was elected as representative to the Council.

The number of members of the Council now total 41.

The Committee on Publication has received the following application from the J. B. Lippincott Company, publishers of "The Practice of Pharmacy," by Joseph P. Remington, for use of text of National Formulary, Fourth Edition, and, in accordance with the rule of the Council governing such applications, present the same to the Council with the recommendation that the application be granted under the conditions stated:

Philadelphia, June 20, 1916.

Publication Committee of the American Pharmaceutical Association:

Gentlemen:

The new edition of "The Practice of Pharmacy" is now in preparation and we desire to use the text of the National Formulary, in whole or in part. We have heretofore been granted permission to use the text or part of the text; and, in the fifth edition of the work, the National Formulary was used in part only, without any charge.

In the forthcoming edition of the "Pharmacy," the author desires to incorporate parts of the National Formulary in the body of the book and through the text and in syllabi; in fact, to put it on the same status as the Pharmacopœia instead of printing the Formulary in the back of the book. This plan will familiarize the student with the Formulary and in a way compel him to study it.

For and in consideration of the sum of one thousand dollars ($1000.00), payable to the American Pharmaceutical Association, we obligate ourselves to print upon the copyright page that permission has been granted by the American Pharmaceutical Association in the usual form.

Respectfully,
J. B. LIPPINCOTT COMPANY,
J. B. Lippincott, *President.*

P. S. It is understood, of course, if permission be granted to use the text of the National Formulary, Fourth Edition, in the Practice of Pharmacy, that, as in the case of the use of the text of the U. S. Pharmacopœia, Ninth Revision, at least ninety days shall elapse after the issue of the N.F. IV before the Practice of Pharmacy can be printed.

Do you favor granting the request of the J. B. Lippincott Company, as given above and recommended by the Committee on Publication? This will be regarded as *Motion No.* 54 (*Grant of Permission to Use N.F. IV text in "The Practice of Pharmacy," published by the J. B. Lippincott Company*).

Motion No. 55 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 293. Charles A. Greenstone, 3531 Market St., Philadelphia, Pa., rec. by J. W. Sturmer and J. W. England.

No. 294. Albert L. Ikan, 1135 Germantown Ave., Philadelphia, Pa., rec. by J. W. Sturmer and J. W. England.

No. 295. Arthur R. Maas, 1121 W. 51st Place, Los Angeles, Cal., rec. by C. W. Johnson and Edith Hindman.

No. 296. Frank Byron Fisk, 116 E. 30th St., Indianapolis, Ind., rec. by A. D. Thorburn and Francis E. Bibbins.

No. 297. Henry Oscar Wuensch, 515 Washington St., East Liverpool, Ohio, rec. by William C. Alpers and Eugene R. Selzer.

No. 298. Mary H. Spenzer, 2150 Central Ave., Cleveland, Ohio, rec. by Eugene R. Selzer and William C. Alpers.

No. 299. Louise Seline Suhr, 589 Spring St., West Hoboken, N. J., rec. by Daniel Alfred Neu and Fred A. Sieker.

No. 300. Nathan Alexander Simpson, 5529 Poplar St., Philadelphia, Pa., rec. by J. W. England and J. G. Roberts.

No. 301. John A. Weeks, 706 Hutchins Ave., Ballinger, Texas, rec. by R. H. Walker and E. G. Eberle.

No. 302. Arow Leib Feller, 623—6th St., New York, N. Y., rec. by Wm. C. Anderson and A. P. Lohness.

No. 303. Seth Parker Grandy, 76 S. Lake St., North East, Pa., rec. by Charles H. LaWall and E. Fullerton Cook.

No. 304. John Robert West, Jr., Tarpon Springs, Fla., rec. by Geo. A. Jamieson and John A. Leverty.

No. 305. Frederick William Nish, 1022 Masonic Ave., San Francisco, Cal., rec. by Edward G. Binz and J. L. Lengfeld.

No. 306. Tony B. Thomas, 1323 E. 24th St., San Leandro, Cal., rec. by J. L. Lengfeld and Thos. R. Worth.

No. 307. John Clark Jopling, 310 N. Illinois St., Indianapolis, Ind., rec. by Francis A. Federer and Francis E. Bibbins.

No. 308. Edgar B. Carter, 810 E. 25th St., Indianapolis, Ind., rec. by Francis A. Federer and Francis E. Bibbins.

No. 309. William A. Konantz, 13 S. Linn St., Iowa City, Iowa, rec. by Wilber J. Teeters and Zada M. Cooper.

No. 310. Ray Emanuel Everly, Canton, Ill., rec. by Wilber J. Teeters and R. A. Kuever.

No. 311. Maurice Edward Dorsey, 304 S. Main St., Ottawa, Kansas, rec. by Paul L. Hess and H. M. Whelpley.

No. 312. Louis J. Meuser, 8 N. Sussex St., Dover, N. J., rec. by George M. Beringer and Charles Holzhauer.

No. 313. Clifford P. Thompson, 503 Main St., Springfield, Mass., rec. by E. H. LaPierre and L. G. Heinritz.

No. 314. Hugo H. Schaefer, 198 Jefferson Ave., Brooklyn, N. Y., rec. by H. M. Whelpley and Wm. B. Day.

J. W. ENGLAND,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

MEMORANDA.

The Resigned or Suspended. Under date of June 18, 1916, Treasurer H. M. Whelpley reports the following members who have resigned or been suspended for the non-payment of dues since May 18th:

Resigned.

Annis, H. P., Niagara Falls, N. Y.
Gill, L. C., Ancon, Panama.
Klein, E. F., Hot Springs, Arkansas.
Rose, E. W., St. Louis, Mo.
Groat, H. S., Renton, Wash.
Beck, J. W., Mt. Vernon, Texas.
Harris, A. O., Columbus, Ohio.
Schultz, W. H., Morgantown, W. Va.
Foote, C. E., Jackson, Mich.
Groff, J. M., Cynwyd, Pa.

Dropped for Non-payment of Dues.

Harrington, E. N., Columbus, Ohio.
Armstrong, T. S., Plainfield, N. J.
Bauman, C. R., Sterling, Col.
Campbell, Andrew, Pittsburgh, Pa.
Calhoun, W. M., Pittsburgh, Pa.
Fuson, H. L., Nashville, Tenn.
Freymark, G. F., Ambridge, Pa.
Haydock, S. G., Philadelphia, Pa.
Johnson, W. M., Gainesville, Fla.
Lienhart, A. H., Ft. Michie, N. Y.
MacDowell, Wm. F., Ellis Island, N. Y.
Mohler, D. C., Ada, Ohio.
Stutzlen, H. A., Rahway, N. J.
Schneider, Albert, San Francisco, Cal.
Schlosser, Peter, Louisville, Ky.
Pruden, F. E., Quanah, Texas.
Payne, Winfield S., Denver, Colo.
Parsons, G. L., Keokuk, Iowa.
Gofele, Felix, New York, N. Y.
Yaffa, D. B., Brooklyn, N. Y.
Varga, John, New York, N. Y.
Ulrich, R. J., Niagara Falls, N. Y.
Tierney, J. A., Glenville, W. Va.
Thome, E. R., Jackson, Mich.
Wicker, J. A., Roslindale, Mass.
Winslow, E. F., Bryn Mawr, Pa.
Paul, G. H., Ft. Columbia, Wash.
Reum, A. W., San Francisco, Cal.
Speer, C. C., St. Augustine, Fla.
Stahlhuth, E. H. W., Columbus, Ind.
Mayo, F. W., Memphis, Tenn.
Lakey, R. T., Detroit, Mich.
Hart, W. F., Newark, N. J.
Beasley, R. S., Hot Springs, Ark

LAWMAKING.

Whenever anything goes wrong in this country, whenever any evil develops in our body politic, we pass a law to stop it and let it go at that. In the New York State Legislature about three thousand bills are introduced at every session and altogether too many of them get into the statute books. Whenever a few of his constituents prepare a bill or ask for one, the obliging senator or assemblyman introduces it. This is true of Congress and of every state legislature. Nobody can read all these bills; even the committees cannot handle their allotments; so the result is a mass of half-baked statutes that have to be construed by the courts and enrich the lawyers who fight about what they mean.

It has come to such a pass that our lawmakers are glad to accept the help of anyone who will try to tell them what a bill is about. Several trade associations employ men to watch all legislations liable to affect the interests of their members, and when such lobbyists are capable and fair they wield great influence because they save the elected lawmakers from making mistakes. Organizations formed on patriotic lines are doing much to protect the people from the unwitting enactment of unwise laws. It should not be necessary for private organizations to do such work, but, if they do not, the conflict of laws will become worse than it is, and it is worse here than in any other country. Our lawmaking bodies have enacted more laws in one year than the British Parliament has passed in a century.

One of New York's brightest wits says that New York can be aroused to a riot or to a meeting of protest, on any proposition of any kind; whereas but a corporal's guard can be got together to create a new sentiment, an affirmative thought, or to convert the great body of the electorate to a common idea. That is true of the whole country. We "pass a law to stop it" but we pay little attention to fundamental principles and our lawmakers are no better than ourselves.

Since the European war broke out Americans have been advising the belligerents how to fight and how to stop the conflict; but at home these same men have failed to show us how to prepare for a little police duty in Mexico or how to keep out of Mexico. Europe must be laughing at us now if it has time to think about our affairs. Most European countries could teach us a lot about lawmaking.—*New York Commercial.*

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.
Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*
Office of Publication, 253 Bourse Building, Philadelphia, Pa.

WHAT SHALL BE DONE WITH CARBOLIC ACID PLANTS AFTER PEACE IS RESTORED?

Recent quotations on carbolic acid were as low as 60 cents a pound in drums. An industrial story of importance lies behind such quotations. Just prior to the outbreak of the war, the production of phenol in this country did not exceed ten tons per month, now it is stated to be upwards of one thousand tons. The enormous demand for picric acid has largely influenced this increased production.

To put it briefly, the declining price of phenol shows that the United States has not only been able, within less than two years, to become absolutely independent of foreign sources of supply, but has increased its output to such an extent that, despite the demand from munition makers, a large surplus production is available for the development and manufacture of other important chemicals hitherto imported from Europe. In other words, American industrial chemists, by their achievements in the manufacture of phenol, have taken a long essential step toward the building up of a vast new American chemical industry.

It is clearly evident that unless some other need than that for munitions is found for phenol, the manufacturers will be forced to discontinue its production on such an extended scale. There is then the opportunity of manufacturing salol, salicylic acid and other derivatives, and it is hoped that while engaged in the production of phenol, the chemists have not overlooked the future of this industry.

NATIONAL ASSOCIATION OF MANUFACTURERS OF MEDICINAL PRODUCTS URGE MOBILIZATION OF PRIVATE RESOURCES FOR MEDICAL SUPPLIES.

The Washington correspondent of the Paint, Oil and Drug Reporter says that copies of resolutions adopted by the National Association of Manufacturers of Medicinal Products, urging the mobilization of all private resources for the manufacture of medical supplies for the army and navy in case of war, have been received in Washington and are a part of the information coming in from various organizations of plans intended to facilitate the campaign of preparedness for the United States in case of war.

President Wilson received a copy of these resolutions which call attention to the necessity of not only providing trained soldiers, but also for perfect organization throughout all the industries of the country which can be of service to the nation in time of war. Mention is also made of the fact that the Government has paid no attention, so far as chemical and allied industries are concerned, to any feature except the furnishing of munitions of war. It is pointed out that it will be desirable to prepare for the prevention of disease in camps as well as the scientific treatment of the wounded if war shall come.

SHALL THERE BE TWO TYPES OF SCHOOLS OF PHARMACY?

The reprint which will follow deals with the present status of medical education and is reproduced for the interesting data contained therein. So the question propounded for this note is really a secondary thought, however, the suggestion may not be out of place notwithstanding that in most pharmacy schools advanced training is offered those students who desire it. The end-points of the thought are, trade schools for preparaing young men and women for the conduct of a drug business and institutions for teaching the sciences, knowledge of which is essential for pharmaceutical and chemical manufacturing, research work in pharmacy and related lines. The suggestion will of course be accepted only as an undeveloped thought. The article referred to follows:

"G. Wilson, Baltimore (*Journal A. M. A.*, April 8, 1916), after noticing the raising of the standards within the past two decades and admitting that the American people are receiving vastly better medical attention than even 10 years ago, says already the cry for a doctor is coming from rural communities, and that they are asking for a good doctor, if possible, but in any case a doctor. While the report of the Carnegie Foundation on medical education in the United States has done an immense amount of good, he thinks that it has held largely the position of an advocate rather than of a judge, and has not considered sufficiently certain important factors. One of these is the difference in the morbidity rates in certain districts from those abroad and the bearing of the per capita wealth of the community with the ratio of physicians to population. His personal opinion as regards medical education has been that there is need in this country of two classes of medical schools, the one like the Johns Hopkins, in which the requirements can hardly be set too high, and the other and larger class for the training of general practitioners. *The first type of school should have a limited class of students, trained not only in clinical and laboratory medicine, but also in the methods of research.* They would become teachers, research workers and specialists, practitioners and consultants in the larger towns and cities. To require this of all men who desire to practice medicine would, Wilson thinks, undoubtedly raise the standard, but be no more satisfactory than to require that all locomotive engineers be graduates in mechanical engineering from an approved college. *The second class should demand a good education in the essentials, namely, the requirements demanded for admission to most colleges and including the essential fundamental scientific branches underlying medicine, such as chemistry, physics and biology.* He would not consider an ancient or modern language essential, though it would be a help. He questions the general accuracy of the statement of the Carnegie Foundation that graduates of the Johns Hopkins Medical School have settled to any extent in small communities. From a study of statistics he finds that they are extremely rare in those of Maryland, where the other school in Baltimore has 350 practitioners from its graduates. In 16 years, from 1897 to 1913, inclusive, the Johns Hopkins Medical School has graduated 965 men, of whom only four are practising medicine in rural Maryland. He gives tables supporting the statements, and trusts that the progress in regulating medical education will be done thoughtfully, and quotes the words of President Pritchett of the Carnegie Foundation: '*Let us not forget in our zeal for research that the principal function of the medical school is the training of medical practitioners.*'"

DAVID HOOPER, PRESIDENT OF BRITISH PHARMACEUTICAL CONFERENCE.

David Hooper, who was awarded the Hanbury Medal in 1907, has been elected president of the British Pharmaceutical Conference. President Hooper is an honorary member of the American Pharmaceutical Association, an honor that he much appreciates and which was bestowed on him in 1899, at the Put-in-Bay meeting. Most of his life was spent in India and he has chiefly been engaged in the chemical examination of drugs and economic products. Two years ago Mr. Hooper retired to take up work in connection with explosives under the Minister of Munitions. President Hooper visited in the United States a few years ago.

DAVID HOOPER
President of the British Pharmaceutical Conference

SIGNING THE INDENTURE OF A FOUR YEARS' APPRENTICESHIP TO PHARMACY.

In the accompanying picture one of our veteran members, N. H. Martin, of Newcastle-on-Tyne, who joined the Society in 1869, is seen signing the indenture of apprenticeship of his grandson exactly 53 years after he himself was indentured to John Solomon of Penryn, Cornwall. During the whole period in which he has practised Pharmacy, his conviction has grown that the founders of the Pharmaceutical Society were right in establishing Pharmacy upon a scientific basis; and he has viewed with regret all developments which seemed to him to foster the purely commercial aspect at the expense of that ideal. He shows his faith in the future of scientific Pharmacy by accepting his grandson as an apprentice to himself in the hope that, through him, his own ideals for the professional and scientific aspects of a calling which he has loved and followed for over 50 years may be perpetuated.

Reading from left to right: Vivian J. Martin, the apprentice; Dr. W. Martin, father of the apprentice; N. H. Martin, pharmaceutical chemist, master; Percy Corder, the family solicitor.

This is reprinted from the Pharmaceutical Journal and Pharmacist, June 3, 1916. Mr. Martin joined the American Pharmaceutical Association in 1891, and has attended several of the annual meetings.

Mr. J. P. Gilmour, a leader of pharmaceutical opinion in Great Britain and former Chairman of the North British Branch of the Pharmaceutical Society, has been elected to succeed Mr. John Humphrey as editor of the Pharmaceutical Journal and Pharmacist. Editor Humphrey was compelled to resign on account of ill health.

Prof. Nestor Tirard, for the past twenty years secretary of the British Pharmacopœia Committee of the General Medical Council and medical editor of the British Pharmacopœia 1914, has been knighted.

OBITUARY

EDWARD WORTH MORSE.

Edward Worth Morse of Mt. Vernon, Ill., died June 20th. Death came suddenly while Mr. Morse was in his wagon and driving back to his home town. Apparently he passed away quietly, due of course to heart failure, as the local paper gives the news, but fails to define more definitely.

Mr. Morse joined the American Pharmaceutical Association in 1896 and was quite regular in his attendance at the annual conventions.

We have no record of his age or family connection, but the home paper gives his age at about seventy-five years, and that he came to Illinois from Massachusetts about forty years ago.

SOCIETIES AND COLLEGES

THE ATLANTIC CITY MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE REPORT OF THE COMMITTEE ON TRANSPORTATION.

The Committee on Transportation of the American Pharmaceutical Association announce the following rates and routes for members attending the sixty-fourth annual convention to be held at

Atlantic City, N. J., September 5–9, 1916.

While no special rate for the Convention could be obtained, the summer tourists' rates will be in operation at date of meeting, and are as follows:

NEW YORK AND NEW ENGLAND TO ATLANTIC CITY.

Portland, Me., to Atlantic City and return *via* Boston	$21.82
Portland, Me., to Atlantic City and return *via* Worcester	22.10
Boston, Mass., to Atlantic City and return	16.50
Hartford, Conn., to Atlantic City and return	11.38
New Haven, Conn., to Atlantic City and return	9.54

Tickets are *via* P. R. R. from New York to Atlantic City and are good for 6 months from date of sale.

Summer excursion tickets are also issued to Philadelphia, Baltimore, Washington and other points on Pennsylvania lines good for 30 days with stop-over privileges; members using these tickets will obtain stop-over in Philadelphia and purchase excursion tickets ($2.75) to Atlantic City.

New York City *via* P. R. R. to Atlantic City and return, good for 6 months, $6.00. See above for excursion tickets to points beyond Atlantic City.

CLEVELAND TO ATLANTIC CITY.

Via Pennsylvania R. R. to Atlantic City *via* Philadelphia and return, $24.10; good to return up to October 31st, and permit to stop over at any station on Pennsylvania system. Pullman, Cleveland to Philadelphia, L. B. $2.50; U. B. $2.00; drawing room $9.00.

New York Central Lines, Atlantic City and return up to October 31st, $24.10; *via* Lake Shore to Buffalo; Lehigh Valley and Philadelphia and Reading to Philadelphia, A. C. R. R. to Atlantic City. Pullman, Buffalo to Philadelphia, L. B., $2.00; U. B., $1.60.

Baltimore and Ohio, Atlantic City and return up to October 31st, $23.60; *via* Pittsburgh, Harpers Ferry, Washington, Baltimore, Philadelphia, stop-overs permitted at any place on line. Pullman, Cleveland to Philadelphia, L. B., $2.50; U. B., $2.00.

Erie R. R., Atlantic City and return up to October 31st, $23.60; *via* Erie R. R. to Waverly, Lehigh Valley to Bethlehem, Philadelphia and Reading to Philadelphia, A. C. R. R. to Atlantic City, stop-overs at any place on line.

CHICAGO, CINCINNATI AND ST. LOUIS TO ATLANTIC CITY.

Via P. R. R. 30-day excursion tickets to go and return by same route are issued as follows:

Chicago to Atlantic City and return	$34.50
Chicago to New York and return	35.00
Cincinnati to Atlantic City and return	29.00
Cincinnati to New York and return	32.00
St. Louis to Atlantic City and return	37.00
St. Louis to New York and return	40.00

Members buying tickets to New York will obtain stop-over in Philadelphia and take side trip to Atlantic City as above.

Representatives of the Pennsylvania R. R. in all cities have been instructed to pay particular attention to the needs of our members.

NEW ORLEANS TO ATLANTIC CITY.

The Louisville and Nashville R. R. has been selected as the official route from Louisiana; tickets will be routed *via* L. & N. to Atlanta, Southern R. R. to Washington; Pennsylvania R. R. to Philadelphia, Atlantic City and New York.

New Orleans to Atlantic City *via* Philadelphia and return up to October 31st, $53.05; stop-overs allowed; going and returning same route.

New Orleans to New York and return same route up to October 31st, $55.70; members buying tickets to points beyond Philadelphia will obtain stop-over at that point and take side trip to Atlantic City.

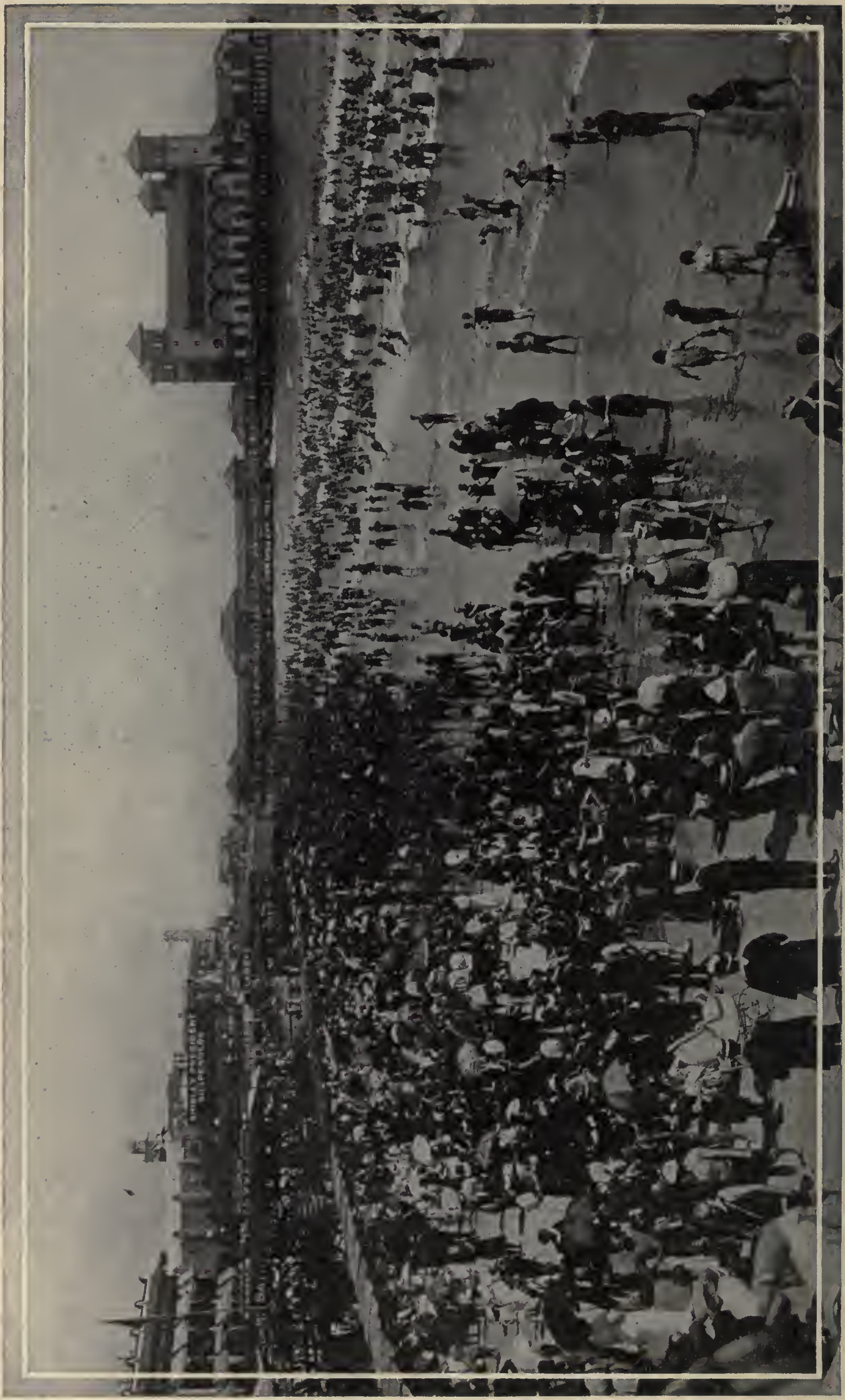
New Orleans to New York going direct route and return up to October 31st *via* Albany, $59.70; Buffalo, Niagara Falls, Detroit & Chicago, stop-overs permitted at all stations.

New Orleans to New York and return within 6 months, $75.00; stop-overs permitted at all stations. Going all rail; return from New York by Southern Pacific Steamship Co., berth and meals included.

NOTE.—All tickets by Southern R. R. between Atlanta and Washington will be honored *via* Asheville without additional charge.

ATLANTA TO ATLANTIC CITY AND NEW YORK.

Via Southern R. R. to Washington; P. R. R. to Atlantic City. Atlanta to Atlantic City and return up to October 31st, $36.05; going and returning same route. Atlanta to



THE 1916 MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN ATLANTIC CITY SEPTEMBER 5-9 INCLUSIVE. THE PICTURE PRESENTS A VIEW OF THE POPULAR RESORT

New York going and returning same route until September 30, $37.10.

Atlanta to New York and return within 60 days, $38.75; going *via* Washington and Philadelphia; returning from New York, by steamship lines to either Norfolk, Charleston or Savannah, thence rail.

Atlanta to New York, $39.50; going Southern R. R. to Washington, P. R. R. to New York, return within 60 days *via* Buffalo and Detroit or Buffalo and Cleveland, Cincinnati and Chattanooga.

All Southern R. R. tickets permit stop-overs at all points enroute on both going and returning trips within final limit of ticket.

Members buying tickets for points east of Philadelphia will obtain stop-over at that point and take in Atlantic City as a side trip at a cost of $2.75 for excursion tickets.

MINNEAPOLIS AND ST. PAUL.

All roads quote a summer excursion rate of $53.50 to Atlantic City same route going and returning within 30 days.

Pacific Coast Points: Special round trip tickets available for our Convention with stop-over privileges will be sold from California common points on August 10th, 24th, 25th, 28th and 29th; and from Northern Pacific Points daily up to September 30th. The going transmit limit on these tickets west of Chicago is 15 days from date of sale. Return limit, October 31st.

From California common points going and returning by direct routes to New York and Philadelphia $110.70—to Boston $112.70—to Portland, Maine, $115.70.

To come east by direct routes and return by Northern route *via* Portland, Oregon, $17.50 must be added to cost of these tickets.

Respectfully submitted,
Thos. F. Main, *Chairman.*
For Committee on Transportation.
June 23, 1916.

ATLANTIC CITY HOTEL RATES.

Chalfonte, headquarters, one person in room, $4.00; two in room, $8.00; two in room with bath, $10.00. Haddon Hall, one person in room, $4, $5, $6, $7; one person in room, with bath, $9.00; two in room, $7, $8, $9, $10, $12, $14; two in room, with bath, $9, and up. Hotel Strand, two persons in room, $8 to $10; two persons in room, with bath, $12. Marlborough-Blenheim, one person, $6 per day, and up. Royal Palace, one person in room, $3.50 and $4; two persons in room, $7 and $8; one person in room, with bath, $5, $6, $7; two in room, with bath, $9, $10, $11, $12. Hotel Traymore, one person in room, $7, $8, $10, $11, $12; European plan, one person in room, $3, $4, $5, $7, $8, $9; two in room, $10 to $16; European plan, two in room, $5 to $10. Hotel Bothwell, $3 and $3.50 per day, running water. The Mullica, $2 and $3 per day; European plan, $1 per day The Shoreham, $2 per day, two in room; $3 per day, with bath. The Grand Atlantic, $2.50 per day, two in room; $3 per day, single rooms. The Wiltshire, $3.50, $4, $5, $6, per day, single rooms; $2.50 to $5, two in room. The Seaside, $3.50 and $4, two in room.

Prices are American plan unless otherwise indicated.

AMERICAN MEDICAL ASSOCIATION.

For the first time the presidency of the American Medical Association has been bestowed on the brother of a former president. So well known is the name of Mayo that it may seem unnecessary to present a biography of the President-Elect. The work that the Mayo brothers have done, the institution they have established at Rochester, Minn., are known throughout the country. Dr.

CHARLES HORACE MAYO
President-elect of American Medical Association

Charles Horace Mayo was born in Rochester, Minn., July 19, 1865, the son of the late Dr. William Worrall Mayo and Louise Abigail Wright Mayo. He graduated from the Chicago Medical College in 1888, and at once began practice with his father and his elder brother, Dr. William J. Mayo, who was President of the American Medical Association in 1906. At that time St. Mary's Hospital in Rochester—which was the start of what has become known as the Mayo Clinic—had thirty patients. He was president of the Western Surgical Association in 1904; of the Minnesota State Medical Association in 1905; chairman of the Section on Surgery of the American Medical Association in 1907, and of the Surgical Section of the International Congress on Tuberculosis in 1908. The honorary degree of M.A. was conferred on him at the Northwestern University in 1902, and the degree of LL.D. at the University of Maryland in 1909.—*Jour. A.M.A.*

THE AMERICAN ASSOCIATION OF PHARMACEUTICAL CHEMISTS.

The ninth annual meeting of the American Association of Pharmaceutical Chemists was held at Cedar Rapids, Iowa, May 30th to June 1st, inclusive.

The members and visiting delegates were guests of the Standard Chemical Company of Des Moines on May 29th and were royally entertained by the Standard Chemical Company and Chamber of Commerce of Des Moines.

The meetings, which opened on Tuesday, May 30th, with an address by Mayor Louis Roth of Cedar Rapids, were largely attended and the consensus of opinion was that the meeting was the best and most valuable ever held.

The following delegates from other associations were present: American Pharmaceutical Association: Prof. W. J. Teeters, University of Iowa, Iowa City, Iowa. American Surgical Trade Credit Association: Mr. F. B. Hovey, Chicago, Ill. American Veterinary Association: Dr. D. M. Campbell, editor *American Journal Veterinary Medicine*, Chicago. National Association Manufacturers of Medicinal Products: Mr. John F. Queeny, Monsanto Chemical Works, St. Louis, Missouri. National Wholesale Druggists Association: Mr. Franklin Junkerman, Churchill Drug Co., Cedar Rapids, Iowa.

The annual banquet was held on Tuesday evening, May 30th, with the visiting delegates and Hon. Louis Roth, mayor of the city of Cedar Rapids; Hon. John T. Hamilton, president Merchants' National Bank; Rev. Father R. J. Campbell, rector of Grace Episcopal Church; Judge Chas. B. Robbins, president Cedar Rapids Commercial Club and Judge of Superior Court; Mr. John Wunderlich, secretary, Cedar Rapids Commercial Club, as guests. Mr. B. L. Maltbie acted as toastmaster.

Many valuable reports and papers were presented, particular interest being centred on the reports of the Committee on Standardization, the Committee on Revision and Discontinuance of Non-Scientific Formulæ, the Committee on Costs and Overheads, and the report of a special committee on Prior Rights and Trade Mark Specialties, by Mr. George C. Hall.

All of the officers were re-elected as follows: President, B. L. Maltbie, Maltbie Chemical Co., Newark, N. J.; First vice-president, E. S. Holt, Howard-Holt Co., Cedar Rapids; second vice-president, J. W. Haynie, Columbus Pharmacal Co., Columbus, Ohio; secretary-treasurer, Dr. C. H. Searle, G. D. Searle & Co., Chicago, Ill.

The three new directors chosen to serve for a term of three years were: R. M. Cain of the Swan-Myers Co., Indianapolis, Indiana; O. F. Schmid, O. F. Schmid Chemical Co., Jackson, Michigan; and D. H. Lohman, Lafayette Pharmacal Company, Lafayette, Indiana.

It was voted to hold the next meeting at Atlantic City.

Too much credit cannot be given the Entertainment Committee, Mr. E. S. Holt of the Howard-Holt Company and Mr. G. D. Ellyson of the Standard Chemical Company, for the entertainment provided for the members and guests. The Association is also under obligations to the Chamber of Commerce of Des Moines and the Commercial Club of Cedar Rapids for the many courtesies extended.

ASSOCIATED ADVERTISING CLUBS OF THE WORLD MEET IN PHILADELPHIA.

Nearly 10,000 members and visitors were in attendance at the convention of the Associated Advertising Clubs of the World in

Philadelphia during the last week of June. President Wilson came over from Washington on one afternoon and addressed the members.

The key-note of the meeting was work during the hours designated and play just as hard when time was called. The exhibitions and parades were grand and the entertainments fine.

President Houston in his address referred to the higher ideals of the Associated Advertising Clubs and the corrective methods it has used to root out abuses in advertising, and place it on a higher and more efficient plane. Mr. Houston, reviewing the work of the associated clubs, called attention to their coöperation with the federal government, Harvard University and other institutions to perfect and regulate advertising and then declared, "I call this a fundamental business."

St. Louis will entertain the Association next year.

THE CHICAGO VETERAN DRUGGISTS' ASSOCIATION CELEBRATES BIRTHDAYS OF HONORED MEMBERS.

The Chicago Veteran Druggists' Association, on June 9, celebrated an event that occurred seventy years prior to June 6, 1916, namely the natal day of Wilhelm Bodemann. The festivities were held at the Germania Club, where a large attendance assembled to enjoy the evening with one of the best loved and most enthusiastic members of the Association. Many, from other sections of the country, regretting their enforced absence and conveying their sincere wishes and congratulations, also spoke their high regard for the celebrant.

A letter from President William C. Alpers of the American Pharmaceutical Association is especially interesting, for in it he sketched the character of the honored guest; firm, outspoken, with a conviction and a will, a true and tried friend.

Members of the *New York Deutscher Apotheker Verein* sent a beautiful loving cup and with it conveyed expressions of friendship to one of their honored members.

Wilhelm Bodemann is too well known for us to attempt a sketch, and though he has lived seventy useful years, time has dealt well with him and the wishes for many more years are not mere hopes, but reasonable expectations.

Jamieson Day also was celebrated at the Germania Club, June 21. Honorary President O. F. Fuller presented a paper paying tribute to the man in whose honor the day has been set apart as a fiesta, Dr. T. N. Jamieson, and to his good wife who shares with him the kindest feeling and fullest love for the organization. Fitting contributions to the program were also made by President Theophilus Schmid, Secretary Wilhelm Bodemann, and C. W. Grassley, Stillman Jamieson responded for his father, and a telegram from Dr. Jamieson was read. Mr. Bodemann also read the very interesting autobiography of Dr. J. H. Beal. Telegrams of greeting were received from Charles Matthews, Charles Fuller and Hugh Craig, who were attending conventions.

INSECTICIDE AND DISINFECTANT MANUFACTURERS' ASSOCIATION.

The fifth open meeting of the Insecticide and Disinfectant Manufacturers' Association was held at the Planters' Hotel, St. Louis, on June 19–20.

Probably the most important feature of the meeting was the discussion of the advisability of having the counsel of the Association try out some test case in order that the limitation of the insecticide act might be judicially ascertained.

After an extended consideration of the matter the following resolution was adopted:

Resolved, That the Board of Governors be requested to select some cases of alleged violation of the insecticide act to be defended by counsel of the Association at the expense of the Association for the purpose of obtaining a judicial determination of the limitations and extent of the insecticide act of 1910 and of the board charged with its administration.

FLAVORING EXTRACT MANUFACTURERS OF UNITED STATES.

The Association of Flavoring Extract Manufacturers of the United States met in Atlantic City June 29.

S. F. Irwin, of Philadelphia, urged associates to give serious consideration to the reported growing use of vanilla extract and other products containing large percentages of alcohol, as substitutes for proscribed liquors in local option territory and prohibition States.

The Philadelphian said that if the use of extracts, easily obtained at groceries, should become common among inveterate users of alcohol deprived of their tipple by anti-liquor laws, the flavoring extract manufacturers might have to face State legislation along lines very detrimental to their interests. Many of the extracts now on the market contain from 36 to 40 percent of alcohol. He spoke in answer to the question, "What's the matter with the extract business?"

Dr. Edward Kremers and Dr. W. O. Richtman, University of Wisconsin, described benefits for the trade to follow research on citrus oils. The color situation was discussed by E. G. Kohnstamm.

The convention wired to the Ways and Means Committee of Congress a resolution urging the repeal of the stamp tax on extracts. It was asserted that with the steadily increasing cost of raw materials the Government's exaction, which cannot, because of market conditions, be transferred to the consumer, represents from one-third to one-half of the net profit upon many sales.

NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

The Committee on Rates and Routes of the National Wholesale Druggists' Association has sent out a folder descriptive of the train and car arrangements made for the transportation of delegates to the annual convention to be held at Baltimore, October 2–6. Special cars will be run from Chicago, St. Louis, Detroit, Toledo, New Orleans, Atlanta, and requests for sleeping car accommodations should be made to the following:

Chicago.—Chas. E. Matthews, 169 N. Franklin Street, Chicago.

St. Louis.—Fred W. Sultan, 112 N. Second Street, St. Louis.

Detroit-Toledo.—Harry Skillman, Detroit.

New Orleans.—Lucien E. Lyons, New Orleans.

Atlanta.—S. C. Dobbs, Atlanta.

An unusual number of hotel reservations have already been made, but further applications will be necessary on the part of those members not already provided for, and should be sent to W. A. Sailer, care of Sharp & Dohme, Baltimore.

The Entertainment Committee announces that on Friday, October 6, a special trip to Annapolis by steamer has been arranged.

THE NATIONAL ASSOCIATION OF DRUG CLERKS.

The Annual Convention of the National Association of Drug Clerks was held in Chicago, June 1 to 3, and was attended by over 200 delegates. Secretary Mandabach's report was replete with the activities of the Association during the past year, and contained many valuable suggestions for continued and further activity.

The entertainment program included a complimentary luncheon given by John T. Milliken Company, of St. Louis, The Richardson Corporation, of Rochester, N. Y., and the Pennsylvania Chocolate Company, of Pittsburgh. Trips were also made through Armour and Company's plant, and to Riverview Amusement Park. A banquet closed the meeting, at which there were a number of interesting addresses.

The following officers were elected for the ensuing year: President, P. F. Coffey, Chicago; vice-presidents, Henry J. Steining, Lafayette, Ind.; Frederick J. Killabee, St. Louis, Mo., and J. A. Orr, Philadelphia; secretary-treasurer, P. A. Mandabach, Chicago; national organizer, J. F. Miser; editor-director of publicity, Paul J. Mandabach, Chicago; counsellor-at-law, Raymond A. Cavanaugh, Chicago; consulting attorneys, Cline C. Brosius and Alexander C. Mabee, with corresponding attorneys in every state in the Union.

DELAWARE PHARMACEUTICAL ASSOCIATION.

The annual convention of the Delaware Pharmaceutical Association was held in Wilmington.

The subjects that held the attention of the meeting were concerned with the present condition of the drug market and the future possibilities.

Dr. Adolph W. Miller, of Philadelphia, delivered an address on "The Requirements for Entrance to Colleges of Pharmacy."

The officers elected for the ensuing year are: President, R. W. Chambers, Lewes; first vice-president, James T. Challenger, New Castle; second vice-president, Walter R. Keyes, Clayton; third vice-president, William Longendyke, Seaford; secretary, Mrs. Nora V. Brendle, Wilmington; treasurer, Oscar C. Draper, Wilmington.

GEORGIA PHARMACEUTICAL ASSOCIATION.

The Georgia Pharmaceutical Association, at its meeting in Atlanta, elected Henry Bell, of Albany, president. The other officers are I. A. Solomon, of Savannah, and L. S. Brigham, of Columbus, vice-presidents; secretary, T. A. Cheatham, of Macon; and treasurer, T. C. Marshall, of Atlanta.

W. S. Elkin was unanimously endorsed for reappointment as a member of the Georgia Board of Pharmacy.

The Association went on record in favor of a new State anti-narcotic law which would also make provisions that no paregoric be sold except in the drug store. It seems that this preparation is sold quite extensively by other stores and evidently creating a paregoric habit.

The next meeting of the Association will be held in Macon.

ILLINOIS PHARMACEUTICAL ASSOCIATION.

The two big features which stand out prominently in the meeting of the Illinois Pharmaceutical Association are the accession of nearly four hundred new members and the establishment of a monthly publication. Addresses by leaders in pharmacy, such as Harry B. Mason, James H. Beal and Thomas H. Potts, contributed greatly to the success of the meeting. The inauguration of a "drug show" and the adoption of a new policy regarding entertainments, coupled with the fact that the second consecutive meeting in the state capital was a distinct success both in attendance and interest, were scarcely of secondary importance.

President Riemenschneider's excellent address dealt with the important questions of membership, legislation, price maintenance, war taxes, the coupon and trading stamp evils, coöperation with the American Pharmaceutical Association and National Association Retail Druggists and especially the need for greater publicity for the work of the organization.

Secretary Day's report included the nomination of 362 new members who were immediately elected to full membership. Over half of these new members were from Chicago. Credit was given to the membership committees of the two associations for their good work. Mention was made especially of F. J. Butler of the State Board of Pharmacy who had brought in 75 new members, F. J. Dubsky, of Chicago, who came second with 64 and, of the travellers, Oscar Huyck with 17, W. B. Stout 11, and Allan Stuart 12. The members of the committee were thanked by the Association for their successful efforts. The Beal prize membership to the three highest candidates in the state examinations during the year were awarded to Benjamin Lowis, of Chicago, Frank W. Graham, of Carlinville, and W. M. Saylor, of State Line, Ind.

The Committee on Trade Interests discussed price protection, the advance in drug costs since the European war began, the war taxes and druggists' profits; it endorsed the Harrison Narcotic Law as a blessing to the drug trade, advocated federal supervision of the liquor traffic and made a plea for shorter hours and Sunday closing.

The Committee on President's Address in its report endorsed the recommendations of the president as follows:

1. Electing T. H. Patterson, ex-president and ex-secretary of the Association, but now retired from active business, to honorary membership.
2. Absolutely opposing schedule B of the Emergency Revenue Law.
3. Protesting against unfair regulations concerning mailing of poisons.
4. Strongly advocating against coupons and trading stamps.
5. Insisting on the maintenance of the present law which prohibits any one but a registered pharmacist from selling narcotics.
6. Favoring the 2-4-8 plan for prices of proprietaries.

The Committee on Resolutions reported resolutions as follows, which were unanimously adopted:

1. Endorsing the graduation prerequisite and instructing the legislative committee to formulate a prerequisite bill and work for its passage at the coming session of the legislature.
2. Favoring a tax on coupons and trading stamps.
3. Inviting the American Pharmaceutical Association to meet in Chicago in 1918, which will be 25 years since its last Chicago meeting.
4. Urging Secretary of State Lansing to endeavor to bring about an understanding with the various belligerent governments

whereby the existing shortage of important medicinal substances may be relieved.

The Special Committee on Publication, appointed by the president in accord with the instructions of the Executive Committee and consisting of Messrs. I. M. Light, L. P. Larsen and J. C. Wheatcroft, recommended the publication of a four-page supplement attached to a regular issue of C.R.D.A. News and to appear once a month and be sent to every member of the Illinois Pharmaceutical Association without charge. The Chicago Retail Druggists' Association is to be paid four hundred dollars a year for the whole expense of this publication. It was further recommended that a publication committee be appointed to furnish items of news and of general interest to the retail drug trade of the state. The publication is to start not later than July 1, 1916.

Dr. J. H. Beal reviewed anti-narcotic Legislation and opposed the repeal of Section 6 of the Harrison Law. He explained the N.A.R.D. Draft for a State Narcotic Law and pointed out that this draft was expected to be altered or amended in minor details to suit conditions in the various states. The speaker would not, however, disturb state laws governing the sale of narcotics where these are now fairly satisfactory.

President Mrazek of the Board of Pharmacy presented his report, which showed a net increase of 105 registered pharmacists and 46 registered assistant pharmacists during the year. The total registration was 5917 registered pharmacists (215 new), 1091 registered assistant pharmacists (185 new), and 759 new apprentices. Eleven hundred and seventy-six persons were examined for pharmacist's or assistant pharmacist's certificates, 30 percent of the R.P.'s and 39 percent of the A.P.'s having been sucessful. Forty-five persons were registered as pharmacists by reciprocity. He called attention to the activities of the Board in enforcing that section of the pharmacy law which prohibits any person other than a registered pharmacist from selling any poison except insecticides in original packages or any medicine containing the interdicted narcotics in any quantity. The Board has been upheld in its views by the decision of the Attorney-General, and retail grocers and general dealers had been advised accordingly.

Upon motion of C. H. Avery the Association voted a contribution of fifty dollars to support the work of the National Association of Boards of Pharmacy.

Mr. Harry B. Mason, in an address on "Modern Merchandising," presented a series of practical business suggestions and observations in manner that left no doubt of their accuracy and importance. He discussed the selection of a location, the training and management of clerks, the development of an "*esprit de corps,*" courses in salesmanship, the value of courtesy, accommodations, and especially *Service,* the slogan of modern business, and the importance of quality.

The Secretary read a letter from Mr. J. F. Hancock, chairman of the Procter Memorial Committee of the A.Ph.A., asking the I.Ph.A. to help in impressing upon Congress the importance of providing a site and an appropriation for a base for the monument of Wm. Procter, Jr., the funds for this monument having been raised by popular subscription among the druggists of the United States. The secretary was instructed to address the congressman and senators from Illinois accordingly.

Secretary Thomas H. Potts of the N.A.R.D. addressed the Association on "Price Protection," but which also dealt with other efforts that his association is making for the benefit of retail druggists.

The committee on prize essays awarded first prize to Harry G. Walter, of McLean, for his essay on "The Little Things."

Upon motion the following were recommended to Governor Dunne for the selection of one to fill the vacancy occurring on the Board of Pharmacy at the end of this year: Stuart Broadwell, Springfield; Byron Armstrong, Jacksonville; C. F. Greer, Centralia; F. O. Schmidt, Chicago, and John J. Chwatal, Chicago. And the following were recommended to President James for the appointment of one on the Advisory Board of the University of Illinois: Albert Zimmermann, Peoria; W. E. Claypool, Springfield; Andrew Scherer, Chicago.

Upon motion the Association re-affiliated with the N.A.R.D. and appropriated $25 for the annual contribution.

After some discussion June 19, 20, 21 and 22, 1917, were selected as the dates for the thirty-eighth annual convention, which will be held in Springfield, in accord with the resolution adopted a year ago to hold five consecutive meetings in the state capital.

The following officers were unanimously

elected: President, W. S. Denton, Beardstown; first vice-president, Byron Armstrong, Jacksonville; second vice-president, J. Robert Phillips, Springfield; third vice-president, Frank J. Dubsky, Chicago; secretary, W. B. Day, Chicago; treasurer, Chris. Garver, Bloomington.

IOWA PHARMACEUTICAL ASSOCIATION.

The Iowa Pharmaceutical Association met in thirty-seventh annual convention at the home of the State University, June 20–22. During the year 202 members were added, making a total at present time of 1908. Sixteen hundred stores are represented and clerks are enrolled in the special membership for clerks. Each county has a member who represents it in the legislative committee, and who looks after the interest of that particular locality.

Prof. R. A. Kuever, chairman of the committee on Progress in Pharmacy, in his report, called attention to what is being accomplished along educational lines; to the adoption of military training in one-fourth of the Colleges of Pharmacy in the U. S. beginning September, 1916; to the addition during the year of several states to the list of those having college prerequisite requirements, this being done either by legislation or by board ruling; and, lastly, to the very great increase in the pharmaceutical products manufactured in this country.

Among the visitors present were Prof. E. L. Newcomb, of Minnesota, who spoke of the work carried on by the Minnesota Association, and Hugh Craig, editor of *N.A.R.D. Journal,* who ably handled the subject of legislation. Dean W. J. Teeters reported on the meeting of the American Pharmaceutical Association in San Francisco and also presented a resolution which was unanimously adopted for a new building to be used by the Pharmacy Department.

The afternoons of the convention were given over to lectures. Among the contributors to this part of the program were: Prof. C. H. Weller, on advertising; L. D. Fisher, of Hannibal, Mo., on drug store arrangements; Prof. R. B. Wylie, on cameras and photography; O. E. Klingaman, on fighting mail-order concerns; C F. Kurtz, on salesmanship, and J. J. Hinman on the purity of water and its analysis.

Besides these special lectures on Wednesday morning preceding the regular business session, Dr. C. S. Chase, professor of materia medica, gave a pharmacological demonstration illustrating the action of the more important cardiac drugs.

Des Moines was selected for the mid-winter session and Dubuque was named for next annual meeting place. The following were elected officers: President, J. A. Todd, Sioux City; first vice-president, T. M. Watts, Holstein; second vice-president, H. C. Hubbard, Humboldt; third vice-president, R. W. Harvey, Missouri Valley; treasurer (re-elected), J. M. Lindly, Winfield; secretary (re-elected), Al. Falkenhainer, Algona. Member of the Executive Committee for three years, the retiring president, J. R. Sutter, of Burlington.

KANSAS PHARMACEUTICAL ASSOCIATION.

The Kansas Pharmaceutical Association convened in annual session May 16–18 in the "Gate City of Kansas," Kansas City. Over 100 names were added to the membership roll, and this brings that up to about 800 members.

The officers elected were: President, J. W. Giesburg, Kansas City; first vice-president, Walter S. Henrion, Wichita; second vice-president, B. C. Culp, DeSoto; secretary, D. V. Riesen, Marysville; local secretary, Geo. Stansfield, Topeka; treasurer, John Schmitter, Gypsum. The next meeting will be in Topeka.

Among the important measures that were passed was the reduction of the Life Membership fee from $50.00 to $25.00. The Legislative Committee asked for a solicitor to visit the druggists who were not members of the Association with the view of enrolling them and also to collect the $3.00 fee to this committee. Three members—clerks—were appointed to meet with the N.A.D.C. when that body is in annual session.

Mr. Thos. H. Potts, secretary of the National Association of Retail Druggists, honored the Association with his presence and read a paper on "Price Maintenance and the Harrison Anti-Narcotic Law." Mr. John S. Chism, Wichita, was a delegate to the American Pharmaceutical Association and presented a report of that Association, which was full of the best for the druggist.

In his message to the druggists, President

Bangs scored in no uncertain terms the American Medical Association for trying to usurp not only the ethical but also the business part of the druggist's profession.

Two prizes were offered for window displays, and these were won by Messrs. Joseph Paradowski and G. Q. Lake, of Kansas City.

Among the features of the entertainment program was the banquet presided over by Henry Faxon, the river excursion provided by Parke, Davis & Co., and the luncheon by Loose-Wiles Company.

KENTUCKY PHARMACEUTICAL ASSOCIATION.

The Kentucky Pharmaceutical Association held its thirty-ninth annual meeting at Olympia Springs with a very good attendance.

Steps were taken looking forward to having a larger membership of the Association and a special committee was appointed to take this matter in hand. Quite a large number of interesting papers were read, and the Stephens price-maintenance bill endorsed.

G. H. Worland, of Brandenberg, was elected president, and the other officers are W. B. Montgomery, of Caneyville, J. F. Wilson, of Mayfield, and E. H. Meyer, Louisville, vice-presidents; J. W. Gale was re-elected secretary, and also Vernon Driskell as treasurer. R. J. Frick, of Louisville, was elected local secretary.

The 1917 meeting will be held in Louisville, June 19.

Prof. C. Lewis Diehl, emeritus professor at the Louisville College of Pharmacy, and his daughter Eleanor were in attendance at the meeting.

MICHIGAN PHARMACEUTICAL ASSOCIATION.

The thirty-fourth annual meeting of the Michigan Pharmaceutical Association was held in Detroit, June 20–22, with an attendance of nearly five hundred. Business methods for the retail druggist were given prominent place among the discussions and papers of the meeting.

The convention was addressed by C. M. Woodruff, secretary of the National Association of Manufacturers of Medicinal Products, who, among other things, gave an outline of the plans and purposes of his organization.

W. H. Marsh, of the Burroughs Adding Machine Company, gave an interesting talk on "The Value of System in Business," with particular reference to the drug business. He took the position that every business, large or small, should be conducted along systematic lines so that each department will show a legitimate profit. Mr. Marsh illustrated his talk with charts prepared for the occasion.

Wednesday evening the feature was the address by Thomas H. Potts, who told of what is being done nationally in a legislative way for pharmacy, placing especial emphasis on the various provisions of the Harrison anti-narcotic law and what was being accomplished with regard to the enactment of the Stephens-Ashurst bill. L. A. Seltzer, of Detroit, presented a valuable and interesting paper on "Present Methods of Pharmaceutical Registration." George H. Grommet, of Detroit, presented a splendid paper on "The Propaganda and the Pharmacist." "The Wealth of Clerks" was well handled by E. J. Parr, of Big Rapids, he outlining what in his opinion constituted good service by clerks.

Charles F. Mann gave a detailed report of the handling of the Prescott Memorial Fund, up to date. Every dollar loaned out of the fund to deserving students to assist them in completing their studies has been returned.

The following were elected officers for the ensuing year: President, C. H. Jongejan, of Grand Rapids (re-elected); vice-presidents, A. B. Robertson, of Lansing, and J. B. Hallecke, of Hillsdale; treasurer, J. G. Stiketee, of Grand Rapids (re-elected); secretary, F. J. Wheaton, of Jackson. M. H. Goodale, of Battle Creek, and C. A. Weaver, of Detroit, were elected members of the executive committee.

MISSISSIPPI PHARMACEUTICAL ASSOCIATION.

The Mississippi Pharmaceutical Association at its fourteenth annual meeting, which was held at Meridian, June 13, elected G. C. Kendell, of Meridian, president. The vice-presidents are Charles Waites, of Clarksdale, and J. C. Holt, of Meridian.

Miss Flora Scarborough, of Laurel, was re-elected secretary-treasurer.

The members of the executive committee are Prof. H. M. Faser, J. C. McGee and J. W. McCorkle.

A tri-state meeting will be held in 1917 at Memphis, Tenn. The participants are the Mississippi, Tennessee and Arkansas Associations.

The 1918 meeting of the Mississippi Association will be held at Gulfport.

MISSOURI PHARMACEUTICAL ASSOCIATION.

The thirty-eighth annual meeting of the Missouri Pharmaceutical Association was convened at Excelsior Springs, June 13.

Among the subjects that received considerable consideration was the condition of the American drug market, with a view of bringing out thoughts and suggestions that would make American pharmacy less dependable on foreign supplies.

Among the visitors at the Missouri meeting were Thomas H. Potts, secretary of the National Association of Retail Druggists, and H. C. Christensen, secretary of the National Association of Boards of Pharmacy, both of whom addressed the convention. The subject of the former embodied a comprehensive review of legislation concerned with the drug trade.

A. M. Howard, of Excelsior Springs, was elected president, and the other officers are H. D. Llewellyn, of Mexico, and F. A. Long, of St. Joseph, vice-presidents; Dr. H. M. Whelpley and William Mittelbach were re-elected to their positions, namely, of secretary and treasurer, respectively.

The Missouri Pharmaceutical Travellers' Association elected the following officers: President, W. H. Raming, of Kansas City; vice-presidents, C. L. Chittenden, of St. Louis, C. A. Sisler, of St. Louis, and W. J. Walsh, of St. Louis; secretary, W. R. Adelsperger, of Kansas City; assistant secretary, Roy Walker, of Kansas City; treasurer, Daniel Liddy, of Kansas City; and sergeant-at-arms, J. T. Goldsmith, of St. Louis.

The Associations will again meet in Excelsior Springs next year.

NEBRASKA PHARMACEUTICAL ASSOCIATION.

The thirty-fifth annual convention of the Nebraska Pharmaceutical Association was held at Hastings, June 13–15.

It has been the custom for a number of years to invite a speaker from another association to address the annual convention. This year Professor C. B. Jordan was the guest of the Association and spoke on Pharmacy, Professional or Commercial—Which?

Prof. J. E. O'Brien of Creighton College presented a paper with a demonstration on the product of coal tar derivatives.

A. V. Pease, Fairbury; D. J. Fink, Holdrege; Fred Picard, Geneva, were named delegates to the National Association of Retail Druggists.

N. P. Hansen and R. A. Lyman, of Lincoln, and I. Curtis Arledge, of Omaha, were elected delegates to the American Pharmaceutical Association.

The following officers were elected for the ensuing year: J. E. O'Brien, Omaha, president, and the following five vice-presidents in the order named: Niels Mikkelsen, Kenesaw; J. W. Fetter, Maxwell; Wm. Milder, Omaha; Fred. P. Picard, Geneva; Elmer Hansen, Lincoln. J. G. McBride, University Place, secretary, and D. D. Adams, Nehawka, treasurer, were re-elected.

NEW JERSEY PHARMACEUTICAL ASSOCIATION.

The forty-sixth annual convention of the New Jersey State Association was held at the New Hollywood Hotel, Long Branch. The meeting was well attended and the membership increased by more than 100. President Charles J. McCloskey complimented the membership committee for its activity, and in his address reviewed the drug market and made a strong plea for raising the standards of pharmacy.

Quite a number of papers were presented and legislative matters thoroughly discussed.

Arrangements were made whereby the Association will participate in the entertainment program to be provided for members of the American Pharmaceutical Association. Mr. Charles Holzhauer, of Newark, is local secretary.

Frank C. Stutzlen, of Elizabeth, who completed his eighteenth year as secretary of the Association, declined re-election.

The following is a list of the officers for the ensuing year: Garret Byrnes, of Maplewood, president; Daniel H. Hills, of Spring Lake, first vice-president; Adolph S. Marquier, of Newark, secretary and vice-president; Jeannot Hostman, of Hoboken, secretary; Edgar R. Sparks, of Burlington, treasurer; Chas. W. Holzhauer, of Jersey City, John G. Black, of

Jersey City, Harry W. Crooks, of Newark, Edward N. Stein, of Montclair, trustees; Stephen D. Woolley, of Ocean Grove, John C. Gallagher, of Jersey City, Thomas S. Armstrong, of Plainfield, Davis Strauss, of Newark, George M. Beringer, of Camden, legislative committee.

COLLEGE GRADUATION REQUIRED BY NEW JERSEY STATE BOARD OF PHARMACY.

One of the most important features accomplished at the meeting of the New Jersey Pharmaceutical Association was the move for higher education in pharmacy.

The New Jersey State Board of Pharmacy has ruled that from July 1, 1917, the candidate must be a graduate from an approved college of pharmacy besides having at least four years of practical experience.

By an approved college of pharmacy presumably is meant a properly equipped institution, which gives a full day course to students having a preliminary education of at least one year of high school.

The New Jersey Board of Pharmacy is to be complimented upon this action, which brings pharmaceutical education in New Jersey at par with that of its neighboring states.

NEW YORK PHARMACEUTICAL ASSOCIATION.

The address of President A. S. Wardle delivered at the annual meeting of the New York State Pharmaceutical Association, held at Richfield Springs, was largely devoted to a review of the work of the Association during the past year. He dwelt at length upon the condition of the drug market. Chain store consolidation, publicity bureaus and propaganda work also came in for attention. He congratulated the committee on membership for their successful work, and presented the slogan which was afterward adopted by the association, of "2500 members by June, 1917."

Affiliation was continued with the National Association of Retail Druggists.

Secretary Warren L. Bradt of the State Board of Pharmacy reported the activities of that organization. One license had been revoked and one pharmacist was suspended for one year, and another for six months. Of the 239 applicants for druggists' licenses, 161 had passed, and 78 failed; while of the 500 applicants examined for pharmacists' licenses, 386 had passed and 114 failed.

The report of the committee on legislation reviewed the legislative activities of New York, and also gave some consideration to national legislation. An anti-coupon law similar to that of Florida was favored.

The committee on Drug Market, composed of Dr. Joseph Weinstein, Thomas Latham and Dr. H. H. Rusby, presented an interesting report dealing with the conditions of the drug market during the past year and how prices had been boosted artificially, at times, with ruinous results. The subject of adulteration and substitution received considerable consideration.

The committee on State Service Pharmacy, which had in charge the classification of salaries, recommended the adoption by the Association of the following resolution:

Resolved, That the New York State Pharmaceutical Association recommends that the State standardize the salaries of pharmacists in State institutions on the following basis: An increase in the salary of all pharmacists of $100 a year until a maximum of $1200 is reached in institutions of less than 4000 patients and $1500 for institutions of over 4000 patients. This increase to extend over a period of three years until the maximum is reached.

The names of the nominees for the State Board of Pharmacy follow: John Hurley, Little Falls; Dr. Jos. Weinstein, New York; Dr. Jacob Diner, New York; Lewis Stokes, Syracuse; Arthur S. Wardle, Hudson; Dr. William C. Anderson, Brooklyn; Robert S. Lehman, New York, and Henry B. Smith, Brooklyn.

Dr. William Mansfield had charge of the papers presented at the convention, and quite a number of valuable papers were read at the meeting. Addresses were made by Professor Homer St. Clair Pace, on "Business Training for Pharmacy," and by Doctor Joseph Kahn on the "Organic Compounds of Arsenic."

The following officers were elected for the ensuing year: President, Elmer E. Chilson, Rochester; first vice-president, Richard A. Austin, Cairo; second vice-president, Dr. Jos. Weinstein, New York; third vice-president, Orrin O. Bigelow, Richfield Springs; secretary, Edward S. Dawson, Syracuse; treasurer, Frank Richardson, Cambridge; members of the executive committee, Charles N. Lehman, Tottenville, Herbert D. Wright, Syracuse, and Henry B. Smith, Brooklyn.

PENNSYLVANIA PHARMACEUTICAL ASSOCIATION.

The registration bureau, conducted by the entertainment committee, showed the number attending the thirty-ninth annual meeting of the Pennsylvania Pharmaceutical Association at Reading, Pa., on June 20, 21 and 22, to be 298. Every one received a book of coupons, entitling the holder to participate in the many amusement features scheduled by the hard-working entertainment committee consisting of Charles Rehfuss, chairman; S. B. Davis and H. J. Hackett.

Discussion and action upon legislative issues dominated the business sessions of the Association. An itinerant venders' bill, in revised form, it was decided should be presented by the incoming legislative committee at the session next January of the Pennsylvania Legislature. The report of Chairman S. C. Henry of the legislative committee contained a recommendation that the Pennsylvania Drug Act be changed so as to harmonize entirely with the Ninth Revision of the United States Pharmacopœia and with the new National Formulary and the Shirley Act. This was approved by the Association, as well as the proposed amendments to the Pharmacy Act which will provide for the recognition and registration of those having experience in hospital pharmacies and who are otherwise qualified and can pass the State Board, and will compel hospitals where prescriptions are compounded to have a registered pharmacist in charge. The incoming committee will also endeavor to frame legislation, pertaining to the sale and possession of narcotic drugs, that will provide for the contingency created by the recent decision of the federal courts under which it is no longer considered a misdemeanor for persons other than those properly registered to have the restricted narcotic drugs in their possession.

The Stevens-Ashurst bill was endorsed; affiliation with the National Association of Retail Druggists continued; and honorary membership, upon the recommendation of retiring president, Theodore Campbell, conferred upon W. B. Day, of Chicago, Ill., general secretary of the American Pharmaceutical Association.

The election of officers resulted as follows: President, Adolph Schmidt, McKeesport; first vice-president, Melvin W. Bamford, Reading; second vice-president, W. H. Knoepfel, Scranton; secretary, R. P. Fischelis, Philadelphia; assistant secretary, Lewis H. Davis, Philadelphia; local secretary, B. W. Pritchard, Pittsburgh; treasurer, F. H. E. Gleim, Lebanon; member of the executive committee, David J. Reese, Philadelphia. Mr. Reese had been the efficient secretary of the Association since 1914, but press of other business made it impossible for him to accept a renomination this year.

The invitation of the Western Pennsylvania members to visit them next year was accepted and the Hotel Schenley, Pittsburgh, was chosen as the meeting place, June 19, 20 and 21, 1917.

The program of entertainment contributed greatly to the success of the meeting. On one day the visitors were the guests of the Reading Chamber of Commerce and the retail druggists of that city in a trolley tour and luncheon at the Tower, a lofty mountain resort overlooking the city. Wednesday evening, William H. Luden, the well-known confectionery manufacturer of Reading, was host to the convention at a banquet at the Hotel Berkshire. The handsome gold prize for the best paper presented at the 1915 session was awarded to Charles H. LaWall, of Philadelphia, while throughout the meeting, the Association maintained its enviable reputation for the number and excellence of the papers read.

The report of Secretary D. J. Reese of the parent organization showed that of the 162 new members elected during the year, 135 had been secured directly by the Travelling Men's Auxiliary. The salesmen gave an excellent entertainment after the banquet on Wednesday evening and proved as usual a powerful working arm of the parent organization. The Auxiliary elected the following officers: President, J. Q. Reinhart, Philadelphia; vice-president, W. H. Skivington, Philadelphia; treasurer, J. D. McFerren, Philadelphia; secretary, J. W. Garlick, Philadelphia.

BROOKLYN ALUMNI ELECT OFFICERS.

The following officers of the Brooklyn College of Pharmacy Alumni Association were elected at the annual meeting: President, Chas. V. Lewis; first vice-president, Dr. Louis F. Thumser; second vice-president, Dr. Harry L. Goldwag; secretary, Benjamin

Mullano; treasurer, Dr. William C. Anderson; registrar, A. R. Helfand; executive committee, Miss Lillian Mahlstadt, Harry A. Gordon, L. Leventhal, and Dr. Robert Henderson.

BUFFALO COLLEGE OF PHARMACY.

The commencement exercises of the Buffalo College of Pharmacy were held June 2.

The degree of master of pharmacy was conferred on one, and that of analytical chemist on eight candidates.

Fifty-two students received the degree of graduate in pharmacy.

After the commencement exercises a dinner was served to the analytical chemistry graduates at Hotel Statler. The dinner to the graduates in pharmacy was given on the night previous at the same hotel.

CINCINNATI COLLEGE OF PHARMACY.

The forty-fourth annual commencement of the Cincinnati College of Pharmacy was held June 1.

Four candidates were given the degree of pharmaceutical chemist, and thirty-five, that of bachelor of pharmacy.

Commencement exercises were followed by a banquet, at which Professor Harding presided as toastmaster.

COLUMBIA UNIVERSITY.

At the commencement exercises of Columbia University, held June 7, thirteen candidates who had successfully completed the University course of the New York College of Pharmacy received the degree of pharmaceutical chemist.

The Breitenbach prize and the Kappa Psi prize were both won by Jos. F. Paulonis, of New York.

FORDHAM UNIVERSITY—DEPARTMENT OF PHARMACY.

At the commencement exercises of Fordham University on June 15, thirty-two candidates received the degree of graduate in pharmacy; and honorary degree of doctor of letters was conferred on James J. Walsh, M.D., formerly dean of the colleges of medicine and pharmacy.

COLLEGE OF PHARMACY, UNIVERSITY OF IOWA.

The thirtieth annual commencement of the College of Pharmacy occurred on June 14th, together with the commencement of the seven other colleges of the University. The address was given by Professor Bliss Perry of Harvard University on "A Famous Speech to Scholars," the speech referred to being Emerson's "American Scholar." Two students were given the degree of pharmaceutical chemist and eighteen that of graduate in pharmacy.

The following prizes were awarded:

Nomination to membership in the American Pharmaceutical Association offered by Dean Teeters was awarded to William A. Konantz, of Quincy, Illinois. This was for highest rank in competitive examination in knowledge of organic drugs.

Nomination to membership in the American Pharmaceutical Association for general excellence in all branches, offered by Gus Scherling, of Sioux City, Iowa, awarded to Ray E. Everly, Canton, Ill.

Nomination to membership in Iowa Pharmaceutical Association, 7 offered by Professor Zada N. Cooper to senior attaining highest rank in pharmacy, was awarded to William A. Konantz, of Quincy, Illinois.

A subscription to *Journal of American Pharmaceutical Association* to junior attaining highest rank in practical pharmacy, offered by Professor R. A. Kuever, was awarded to Roscoe E. Stewart, of Spencer, Iowa.

William A. Moerschel, of Homestead, Iowa, was recommended for commission in Cadet Regiment, 1916–17.

OTHER A.PH.A. MEMBERSHIPS.

We endeavor to make mention of all memberships given in the American Pharmaceutical Association, in connection with reports of schools, associations, etc., but doubtless some are unintentionally omitted.

The San Francisco Branch A.Ph.A. donates a membership to a member of the graduating class of the San Francisco College of Pharmacy, who stands highest in theory and practice of pharmacy.

The Oklahoma School of Pharmacy gives a membership prize, known as the John Barbour senior prize, to the student making the highest grade, and the Howard Storm Browne prize to the student receiving best grade in materia medica.

PHARMACY DEPARTMENT—COLLEGE OF JERSEY CITY.

The commencement exercises of the College of Jersey City were held at the Bergen Lyceum, on Thursday evening, June 15, 1916. The opening address was made by Hon. James E. Pope, president of the College; Dr. Gordon K. Dickinson, the eminent surgeon in New Jersey, delivered the address to the graduating classes and Hon. Joseph E. Bernstein, the treasurer of the College, spoke briefly.

In the Department of Pharmacy, David Tischler was awarded the gold medal and William P. Bohne received the silver medal.

UNIVERSITY OF MARYLAND, COLLEGE OF PHARMACY.

The Maryland College of Pharmacy conferred the degree of graduate in pharmacy on twenty-one candidates.

The graduation exercises were held at the Lyric. The address to the graduates was made by Governor Harrington, of Maryland, and the degrees were conferred by the provost of the University, the candidates being presented by Dean Charles Caspari, Jr.

The degree of doctor of laws was conferred on Dr. William Simon, and the diploma bore the signature, among others, of Professor H. Hynson, whose diploma as a graduate in pharmacy Doctor Simon had signed thirty-nine years before. Professor Hynson is now secretary of the Board of Regents of the University, and it is stated that next year he will limit his teaching to commercial pharmacy and lecturing on drug store practice.

COLLEGE OF PHARMACY OF THE UNIVERSITY OF MINNESOTA.

At the commencement exercises of the College of Pharmacy, University of Minnesota, two candidates were given the degree of master of science in pharmacy, one that of bachelor of pharmacy and twenty-seven the degree of graduate in pharmacy.

The commencement address on the subject, "Present-Day Humanism," was delivered by the Rev. Samuel McChord Crothers, D.D., Litt.D., minister of the First Unitarian Church, Cambridge, Mass. Unfortunately Dean F. J. Wulling could not take his usual part in the commencement exercises, having been called to Denver, Colorado, by the death of his youngest sister. In his absence Dr. E. L. Newcomb presented the candidates for graduation to the President of the University, who then conferred the respective degrees upon them.

UNIVERSITY OF MONTANA.

Dean Charles E. Mollet and students of the Department of Pharmacy, University of Montana, have experimented in drug-plant culture during the past year. The plants cultivated this year are calamus, chimaphila, convallaria, grindelia, hyoscyamus, juniper, phytolacca, podophyllum, prunus virginiana, salix, savin, stramonium, taraxacum and uva ursi.

Two memberships in the American Pharmaceutical Association were offered; one by Alex. F. Peterson, secretary of the local branch, A.Ph.A., to the freshman student showing the highest proficiency in manufacturing pharmacy, and was won by Thomas H. Bienz, of Kalispell; the other to the senior student making the highest general average, given by Dean Mollet and awarded to Benj. E. Lapeyre, Jr., of Great Falls.

NEW ORLEANS COLLEGE OF PHARMACY CONFERS DEGREE OF DOCTOR OF PHARMACY ON F. C. GODBOLD.

The New Orleans College of Pharmacy graduated twenty-seven students; of these, nine were from Cuba. A prize membership in the American Pharmaceutical Association was awarded by Dean Philip Asher to Frank G. Rieger, of Donaldsonville, La.

A degree of honor, that of doctor of pharmacy, was conferred on Fabius C. Godbold, charter member of the New Orleans College, and Honorary President of the American Pharmaceutical Association.

ALUMNI ASSOCIATION, NEW YORK COLLEGE OF PHARMACY, ELECTS OFFICERS.

The Alumni Association of the College of Pharmacy of the City of New York has elected the following officers for the year 1916–17: Honorary president, T. F. Main;

president, J. A. Steffens; vice-presidents, M. H. Weil, E. Windt and V. M. Orefice; secretary, L. Roon; treasurer, F. A. Leslie; registrar, J. Hostmann; members of the executive board, C. W. Ballard, F. N. Pond and E. C. Steinach.

CHANGES IN FACULTY OF PHILADELPHIA COLLEGE OF PHARMACY.

Dr. Samuel P. Sadtler, for thirty-eight years active as professor of chemistry in the Philadelphia College of Pharmacy, has been made emeritus professor of that institution.

The activities of Professor Sadtler are well known in a general way to all scientific men, for as a chemist he is distinguished; however, pharmacists know him, not only as a teacher but author of a number of chemical textbooks and as chemical editor of the United States Dispensatory; this work he will continue. One of his sons, S. S. Sadtler, is associated with his father.

SAMUEL P. SADTLER

Professor Sadtler, who was born at Pinegrove, Pa., 69 years ago, was educated at Easton high school, Pennsylvania College (Gettysburg), and the universities of Lehigh, Harvard, and Göttingen. He taught first in Pennsylvania College then in the University of Pennsylvania and since 1879 at the Philadelphia College of Pharmacy.

Prof. Freeman Stroup, who has been appointed acting professor of chemistry in the Philadelphia College of Pharmacy, has been assistant to Professor Sadtler since 1899. Before entering pharmacy, Professor Stroup was a school teacher. He graduated from the Philadelphia College of Pharmacy in 1896, thereafter giving further study to chemistry in the same institution, and in 1899 was nominated assistant to Professor Sadtler.

PITTSBURGH COLLEGE OF PHARMACY.

At the commencement exercises, held June 14th, the Pittsburgh College of Pharmacy graduated seventy-seven students with the degree of graduate in pharmacy, one as a pharmaceutical chemist, and eleven with certificates of proficiency. The prize-winning students were: Mrs. Muriel B. Holman, Beal scholarship and the pharmacognosy prize; A. M. Berkowitz, Saalbach pharmacy prize; Isadore Bluestone, Judd materia medica prize; B. F. Rodriguez, Saalbach pharmaceutical products prize; E. C. Reif, chemistry prize. C. S. Miller, director of physical education at the University of Pittsburgh, received the honorary degree of master of pharmacy.

QUEEN CITY COLLEGE OF PHARMACY.

The Queen City College of Pharmacy, Cincinnati, held commencement exercises June 28. Fifty-four students were given the degree of graduate in pharmacy.

GEORGE WASHINGTON UNIVERSITY —DEPARTMENT OF PHARMACY.

Fifteen graduates received the degree of doctor of pharmacy at the ninety-fifth annual commencement of the George Washington University, held June 7.

The candidates were presented by Dean Kalusowski, and the degrees were conferred by President Stockton, who also delivered the address to the graduates.

PHARMACY DEPARTMENT—UNIVERSITY OF WISCONSIN.

At the commencement exercises of the pharmacy department of the University of Wisconsin, eleven students were graduated in pharmacy.

A. G. DuMez, who graduated from the University of Wisconsin in 1907, and is now associate professor and director in the Course in Pharmacy at the University of the Philippines, will remain at the University of Wisconsin during the summer session in order to complete his work for the doctor's degree.

Dr. J. H. Beal, of Urbana, Illinois, recently delivered an interesting and instructive lecture to the students of the pharmacy department on "The Burdens of Progressive Legislation."

THE PHARMACIST AND THE LAW

REGISTRATION OF PATENT MEDICINES IN PORTO RICO.

The regulations applying to the registration of patent medicine became effective July 1, and require: That no person, firm, syndicate, corporation, proprietor or administrator of a drug store or pharmacy and no business engaged in manufacturing on the island of Porto Rico, devoted to the preparation of patent medicines designed for pharmacological uses, shall offer for sale such medicines, nor distribute them from house to house, nor give out free samples unless the medical formula for such preparation shall have been previously registered with the Service of Sanitation.

That the application for such registration shall state that the medicine has been prepared in accordance with the provisions of the Federal Food and Drugs Act of 1906, and also with regulation No. 28, governing such medicines. The other data to be filed at the same time shall include the name of the preparation, of the applicant, where the remedy is made, the form and container employed, the names in English and Spanish of all ingredients except those inactive or inert; the therapeutic effects claimed. The exact text of the advertising matter to be used and of the matter accompanying the preparation must also be given, together with the name of the island agent if the manufacturer is a non-resident of Porto Rico.

With the application must be submitted two samples of the medicine as sold, and copies of the advertising matter to be employed. The form of advertising and the make-up of the package shall not be changed without authorization of the Service of Sanitation.

The Service of Sanitation is instructed not to make known the formula nor the names of the ingredients employed.

All this data will be filed in a book of registration together with the official number given the preparation, and an analysis made by the director of the chemical laboratory of the service, who must give to the applicant as his guarantee a certified copy of the registry, together with a copy of the official analysis.

Manufacturers of such patent medicines are, however, forbidden to use any legend on the package which would infer that the Service of Sanitation either guarantees or recognizes the merits or the therapeutic action of the medicine so registered.

TIME OF REGISTRATION.

The original time for such registration was set at July 1, after which date the advertising and sale of non-registered medicines would be prohibited, but Director W. F. Lippitt, director of the health board, has since stated that "reasonable time" will be allowed for such registration, up to 60 days from July 1. Director Lippitt's original ruling as to registrations was, in part, as follows:

2. In order to give more time to merchants the "' Sanitary Service" will extend said period until the first day of July, 1916, on which date the corresponding solicitations of registration should be presented, and if not, said preparations will be prohibited in sale and advertising.

3. It should be understood, nevertheless, that July 1 is not the limit of time for the approval of such solicitations, nor for termination of the analysis or emission of definite information, only for the presentation of documents required for such ruling. For this reason it shall be clearly understood that petitions for registration of a patented article, does not imply its definite acceptation.

4. The interested parties may solicit copies, in English or Spanish, of said ruling.

5. Pharmacists should exact from the wholesaler some written manifestation that the patented article they are purchasing is registered in accordance with the law, as the presentation of such writing renders the retailer free from the responsibility in regard to fulfillment of this ruling.

REVISED NARCOTIC LAW TO BE TAXATION MEASURE?

There are grounds for the belief that when the Treasury officials take up the question of plans for strengthening the Harrison anti-narcotic law to meet the situation enforced by the decision of the United States Supreme Court they will move along the line of making the law more of a Federal taxing measure than it now is, rather than attempt to patch up the law by a mere change of verbiage in an effort to meet the objections which the high court raised to the statute.

It is recognized among the government attorneys and experts in charge of the subject that the decision of the Supreme Court turned very largely on the question of the inexactitude of the law, which it is well understood will not be permitted in a criminal statute. It is not believed that the law can be strengthened with any amendments having to do with the question whether it covers opium produced or imported into the country, and whether the persons sought to be prevented from having illegal possession of the inhibited drugs are "any other" persons or "all other" persons.

In other words, the Treasury officials will be inclined to favor the plan suggested in the last report of the Commissioner of Internal Revenue, with the approval of Secretary McAdoo, for taxing all original packages of these inhibited drugs and eliminating the stamp taxation only in cases where orders for these drugs are filled from stamped packages upon physicians' prescriptions or are given by the physician, or other exempted persons in the course of their practice.

It is the belief of the officials that if the taxing provisions, such as are employed in the oleomargarine law, for example, are applied to these narcotic drugs there would be no objection on the part of wholesalers and retailers who would deal in the stamped goods and that persons who dispense the drugs upon prescriptions or otherwise in legitimate practice would make such records of the dispensing of the drugs as would enable the officials to prevent the inhibited drugs falling into the hands of addicts in unlawful quantities.

While no intimations are given as to the time when the department will take up this subject, and there continue to be suggestions that the matter may not be pressed at the present session of Congress, it is believed that the officials will thoroughly map out a program and confer with senators and representatives as well as with the representatives of the drug trade thereon within a short time.

So far as can be learned the persons in the trade, including wholesalers, retailers and physicians, have up to this time indulged in no comments in correspondence with the department relative to the change in the conditions enforced by the Supreme Court decision.

—*Paint, Oil and Drug Reporter.*

A CHECK NOT ALWAYS A RECEIPT.

A depositor claimed that the bank had wrongfully charged his account with $900. The bank sent a check for 65 cents to him, with a letter stating that this was his balance in full with the bank and was in settlement of his account. The depositor accepted the check. The bank set up that the depositor had no further claim upon it. The court held otherwise and said:

"We can see no just ground upon which the acceptance of the 65 cents inclosed with the above letter and general statement of plaintiff's account at the bank could have constituted an accord and satisfaction of the disputed item of $900. That the plaintiff was disputing the correctness of the charge of $900 against him cannot be denied, because he had already filed his suit for this item. The 65 cents sent him was an amount in addition to this about which there was no controversy. It is inconceivable that the plaintiff intended to settle his claim for $900 in consideration of the payment of 65 cents of his own money. It is true the plaintiff retained the 65 cents mailed him; but he had a right to do this, as it was his own money, and there was no controversy with reference to this small balance.

"The attention of the plaintiff was not directed by the above letter to the controversy with reference to the $900 item. The $900 item was charged on the account; but it only signified that the bank still had him charged with the $900 item which he disputed. Not only must an offer be made in full settlement of a disputed claim, but it must be accepted as full settlement. There is nothing in the letter above quoted to call plaintiff's attention to the fact, if it were a fact, that the defendant bank was offering this 65 cents in money in full settlement of defendant's claim for $900." (Collins vs. Union and Farmers' Bank; 70 So. 581. Miss. Sup. Ct.)

THE PARK CASES SETTLED AFTER TWENTY YEARS IN COURT.

The Park suit against the National Wholesale Druggists' Association and a number of wholesale druggists named as co-defendants originated at a time when trade conditions were vastly different than now, and also laws and views of the judiciary.

The action brought by plaintiff charged conspiracy in restraint of trade and the most recent of the Park Company actions to reach the courts was what is commonly known as a tort case, alleging conspiracy on the part of several wholesale drug houses which are members of the National Wholesale Druggists' Association, especially directed against the Park Company, including in its specifications "black-listing," spying on that concern's operations and an effort to prevent that company from obtaining business.

This case was set for trial before Justice Clarence A. Shearn and a jury in the Supreme Court at New York for June 2, but was later transferred to a part of that court in which Justice Gavegan was sitting, and was scheduled for trial on June 5.

During this adjournment the compromise was effected by the lawyers for both sides, Norman B. Beecher, of Burlingham, Montgomery & Beecher, and Leo Everett, of Everett, Clarke & Benedict, as the attorney and associate counsel for the defendants, and former Judge Alton B. Parker and Arthur B. McCausland, representing the Park Company.

The other suits have likewise been settled, and the sum involved is, $125,000.

Those in position to know say that these suits might have been continued in court for twenty years longer and possibly then not be nearer a conclusion. The settlement is costly, but even at the price, everyone concerned is to be congratulated on the termination of this case with an interesting and expensive history.

ONE CENT DAMAGES IN CARDUI CASE.

The jury in the case of Chattanooga Medicine Company against the American Medical Association for libel, brought in a verdict of one cent damages in favor of plaintiff, June 22, after six days' consideration.

Damages were sought as a result of the publication in the *Journal of the American Medical Association,* describing the Wine of Cardui, manufactured and sold by plaintiffs, as a "booze, a tipple, a worthless fraud and a cheat."

It was stated in the press that the counsel for plaintiffs had said, "that the suit would probably never have been brought had not the accusation been made that the manufacturers of Wine of Cardui knowingly perpetuated a fraud and used the Methodist Church as a means to further their business."

An editorial comment on the verdict in the *Journal of the American Medical Association* of July 1, 1916, p. 41, concludes with these words: "Viewing all the facts in the case and remembering the heavy damages asked by the plaintiff, the medical profession may interpret the verdict thus: Technically guilty; morally justified! To the Association a moral triumph: to the 'patent medicine' interests a Pyrrhic victory."

WAR DEPARTMENT

List of changes of stations covering period ending June 30, 1916, in the cases of Sergeants First Class and Sergeants, Medical Department.

SERGEANTS FIRST CLASS.

Ivan N. Karlson, from Jefferson Barracks, to the U. S. Transport "Kilpatrick."

Jason D. Byers, from the Augusta Arsenal, to the Field Medical Supply Depot, Washington, D. C.

Samuel Marcus, from Fort Ward, to the Augusta Arsenal.

Chester L. Thomson, from Fort Bayard, to the Remount Depot, Fort Keogh.

William J. Freebourne, from the Remount Depot, Fort Keogh, to Fort Caswell.

Richard E. Humes, from the Walter Reed General Hospital, to the U. S. A. Transport "Sumner."

Harry L. Reiter, from Fort Levett, to the Southern Department, for assignment.

SERGEANTS.

Sam K. Leming, from Jefferson Barracks, to the Letterman General Hospital.

Charles K. Aikin, from the Southern Department, to Fort Barrancas.

Charles Brown, from Fort Logan H. Roots, to the Walter Reed General Hospital.

Ignatius B. Thomas, from Fort Monroe, to Jackson Barracks.

Ray L. Reed, from the Rock Island Arsenal, to the Southern Department for assignment to station.

John Haaies, from the Frankford Arsenal, to the Southern Department for assignment to station.

Elmer M. Peddrick, from Fort Adams, to the Southern Department for assignment.

Duncan M. McClure, from Fort Jay, to Madison Barracks.

Harry Cook, from the Washington Barracks, to the Southern Department for assignment to station.

Richard Ewinski, from Fort Logan, to the Southern Department for assignment.

Levi F. Grigsby, from Fort Logan, to the Southern Department for assignment.

Verle J. Fields, from Fort Leavenworth, to the Southern Department for assignment.

Matthew S. Matthews, from the U. S. Disciplinary Barracks, Leavenworth, to the Southern Department for assignment to station.

James W. Brown, from Fort Bayard, to the Southern Department for assignment.

Maxwell E. Hill, from Fort Bayard, to the Southern Department for assignment.

Corbett C. Phipps, from the Letterman General Hospital, to the Southern Department for assignment to station.

Orville T. Musser, from the Letterman General Hospital, to the Southern Department for assignment to station.

CHANGES OF ADDRESS

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESS SINCE MAY 18, 1916.

HUDER, H. J.,
From 52 E. Washington St., Indianapolis, Ind.
To 102 Washington St., Indianapolis, Ind.

ANDERSON, A. E.,
From 1827 13th St., Moline, Ill.
To 711 16th St., Moline, Ill.

GLANCY, J. D.,
From 59 Gates Ave., Brooklyn, N. Y.
To Upton, Mass.

KOSSLER, H. S.,
From 206 S. Main St., Wabash Sta., Pittsburgh, Pa.
To 444 S. Main St., Pittsburgh, Pa.

DELGADO, ESTRELLA,
From San Miguel No. 1 Altos, Habana.
To Principe 19 Habana, Cuba.

CROCKETT, WM. G.,
From 113 W. 64th St., New York, N. Y.
To 116 W. 82d St., New York, N. Y.

SANDERS, H. B.,
From 2357 Kenilworth Ave., South Norwood, Ohio.
To 346 Probasco Ave., Clifton Heights, Cincinnati, Ohio.

SHAPIRO, H. A.,
From 1 Durham St., Boston, Mass.
To 43 St. Stephen St., Boston, Mass.

DAVIS, E. M.,
From 309 Lion St., Dunkirk, N. Y.
To 317 Lion St., Dunkirk, N. Y.

BLAKELEY, G. C.,
From 3132 Second St., The Dalles, Ore.
To 3131 Second St., The Dalles, Ore.

LAKAMP, WM.,
From 3623 Montgomery Rd., Cincinnati, Ohio.
To 1201 Vine St., Cincinnati, Ohio.

SEAMAN, F. A.,
From 229 Rector St., Perth Amboy, N. J.
To 406 S. Palmetto Ave., Daytona, Fla.

Williams, G. G.,
From 99 North St., Boston, Mass.
To 43 Stelson St., Brookline, Mass.

Gasen, Harry,
From Chicago, Ill.
To Care of Litchfield Pharmacy, Litchfield, Ill.

Stookey, H. F.,
From Kirskville, Mo.
To Colchester, Ill.

Arndt, W. H.,
From Brooklyn, N. Y.
To Webster, N. Y.

Kaetzel, C. P.,
From Elwood City, Pa.
To Harmony, Pa.

Siegel, H. J.,
From 51 J Street, Sacramento, Cal.
To Box 181 R. D. 4, Sacramento, Cal.

Troupin, E. S.,
From Residence unknown.
To 124 Pacific St., Stamford, Conn.

Beach, D. C.,
From 635 Myrtle Ave., Albany, N. Y.
To 175 Jay St., Albany, N. Y.

Diethelm, Martin,
From 701 Madison Ave., Toledo, Ohio.
To 702 Madison Ave., Toledo, Ohio.

Mason, Earl H.,
From 99 Chapin Ave., Providence, R. I.
To 119 Ontario St., Providence, R. I.

Ryan, A. S.,
From 1001 16th St., Denver, Colo.
To Box 1140, Denver, Colo.

Scholtz, Wm. O.,
From 1001 16th St., Denver, Colo.
To Box 1140, Denver, Colo.

Bruder, Otto E.,
From 3525 Greenwood Ave., Chicago, Ill.
To 4252 N. Lincoln St., Chicago, Ill.

Remirez, Francisco,
From Delicias 88 entre Millagros y Catalina, Jesus del Monte, Habana, Cuba.
To Jesus del Monte 476, Habana, Cuba.

Wolf, James C.,
From James C. Wolf, 2207 E. Pratt St., Baltimore, Md.
To J. Carlton Wolf, 401 S. Broadway, Baltimore, Md.

DECEASED SINCE MAY 18, 1916.

Franzoni, Jos. D.,
Washington, D. C.
Hay, Chas. K.,
Du Bois, Pa.

PUBLICATIONS RECEIVED

Proceedings of the Fifth Annual Meeting of National Association of Manufacturers of Medicinal Products.

There is much interesting matter in this volume of 270 pages which has just been issued. The reports of the officers and committees are comprehensive and contain valuable information on legislation, the industries of the drug trade, etc. The address by Dr. J. H. Beal as representative of the American Pharmaceutical Association on "the Community of Interest of the Drug Trades in Food and Drug Legislation" was printed in the Journal for February, 1916, p. 175. A brief by him respecting Treasury Decision 2213 analyzes section 6 of the Harrison law, and the reading to arrive at a correct and fair definition of "preparations," "remedies" and "prescription" exhibits the usual care and thoroughness of the author. Likewise the brief on the Sherley Amendment and Treasury Decision 2194, by Charles M. Woodruff, is a complete and clear exposition. Among the papers of general interest is that on Constructive Government, by Dr. A. R. L. Dohme, and so extended comment might be made on other subjects, but this brief reference is for expressing, that the volume is deserving of much more consideration than of simply acknowledging its receipt.

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, $4.00; Canada, $4.35; foreign countries, $4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

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Further information will gladly be furnished by any of the officers of the Association and members.

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1912	1914	1915	1916
April	August	January	January
May	September		February
	October		March
			April

JOHN FRANCIS HANCOCK
BALTIMORE

Twenty-first President of the American Pharmaceutical Association
Chairman, William Procter, Jr., Memorial Monument Committee

JOHN FRANCIS HANCOCK

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. V AUGUST, 1916 NO. 8

JOHN FRANCIS HANCOCK.

The subject of this friendly, personal sketch dates his lineage back to 1664, when his ancestor, Stephen Hancock, came to St. Mary's, the first settlement in Maryland. The possessions obtained at that time have been in the Hancock family to the present generation; good stock it must have been, and has been well preserved in the person occupying our thought at this writing.

We do not desire to genealogize, but rather pay a tribute to one who is among the most distinguished members of our Pharmaceutical family. He commenced his career in a one-story log school-house, but unfortunately lost his father by death at the early age of fifteen years, and conditions prevented his attaining the educational ambition along the lines of classical education, as hoped for. He was early constrained to work his way as many others have had to do—possessed of the right sort of grit, availing every possible help for self-culture, of genial disposition and courage undaunted, a fixed purpose, a well balanced mind and sterling integrity. He won friends at every turn and in course landed in the Apothecary Shop of that day, and at the age of twenty-one became a partner in a business—since then, the name of Hancock in Pharmacy has had an unbroken line, from Landis & Hancock, John F. Hancock, and now John F. Hancock & Son.

He matriculated in the Maryland College of Pharmacy in 1857, and devoted his first opportunity to special study of chemistry. The next two years he was able to attend all the lectures in the three branches taught, and graduated in 1860. He became a member of the College in 1861, and soon thereafter was elected a member of the Board of Examiners. The degree of Master in Pharmacy was awarded by his College, and he served as president in 1872-1874. In 1907 the University of Maryland honored him with the degree of Doctor of Pharmacy, and in 1908 the Philadelphia College of Pharmacy awarded the degree of Master in Pharmacy. He became affiliated with the American Pharmaceutical Association in 1863, and was its president in 1873-1874. The records of this Association indicate valuable service. His life and career up to date are full of good work. His service in the interest of the Memorial Monument to William Procter, Jr., which, when finally placed, will also be a monument to his fidelity to the cause he has fathered and labored for with such persevering efficiency for over sixteen years.

He is a member of the Maryland Pharmaceutical Association, an honorary member of the Pennsylvania Pharmaceutical Association and a frequent visitor at its annual meetings, where he is at all times a welcome guest. He is a most genial, hospitable and affectionate friend. JOSEPH LYON LEMBERGER.

EDITORIAL

E. G EBERLE, Editor **253 Bourse Bldg., PHILADELPHIA**

THE NINTH REVISION OF THE UNITED STATES PHARMACOPŒIA.

SEPTEMBER 1 has been named as the date when the Ninth Revision of the United States Pharmacopœia will become official. While the time intervening is a shorter period than obtained between the dates of publication and official designation of previous revisions, comparatively few additions were made to the materia medica of the Ninth Revision, and most of these are supplied by manufacturers and wholesalers. Wide publicity has been given to the changes made in the Pharmacopœia, so that everyone deeply interested should be informed, and it is safe to say that on September 1, drugs and preparations according to the U. S. P. IX will be obtainable. The fact is, that with very few exceptions, the drugs, chemicals and preparations that have been on the market conform to the standard. To some extent it may be necessary to modify the statement relative to drugs, but this is largely due to the unfortunate conditions that have obtained during the past two years; still it is safe to say that standardized drugs are obtainable, and the preparations of American manufacturers conform to the official requirements. Conclusively the pharmacists who recognize their responsibilities are now supplied with official materia medica. That there must and will be some allowance made, on account of the practical impossibility to supply everyone requiring a Pharmacopœia, is becoming very evident.

It is a remarkable fact that many pharmacists never read the introductory notices of the Pharmacopœia, nor give attention to Part II. In the present Revision, the latter contains very important matter and perhaps more of what is really new than Part I. Every pharmacist should devote study to both of the sections referred to—necessity will compel reference to the other portions of the book.

By looking over the list of additions and deletions and the tables of changes in standards, pharmacists will soon know whether their stock conforms, and what they must do in order to bring it to the requirements of the present Revision.

A number of titles have appended the capital letters P. I., an abbreviation signifying that the preparation or drug conforms to a standard or strength agreed upon by the Brussels Conference. As quite a number of reviews relating to the new Pharmacopœia have appeared, and one is in this issue of the JOURNAL, and also because reference is made in these papers to the International Protocol,[1] and for the further reason that several communications have reached the editorial office asking for information relative to this agreement, the conclusion has been reached to explain with some little detail the purpose of such international agreement.

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[1] Applying deductions from the definition of the word, the Protocol may be defined as a document signed by authorized representatives of the governments entering into an agreement, whereby it is sought to secure uniform standards for materia medica.

The European war has very strongly emphasized that nations are interdependent. We obtain our supplies from every section of the world and hence must have knowledge of the crude and manufactured products in order to provide standards. The application may be extended by alluding to the fact that distances are only relative, and people of one country travel in the lands of another. For these reasons the making of a national pharmacopœia requires international coöperation.

The Protocol may be said to be the practical substitute for an international pharmacopœia. As one of the important results of the conference in the City of Brussels, September, 1902, the Eighth Revision of the United States Pharmacopœia adopted a 10 percent strength for the tinctures of potent drugs. It will be remembered that this meant quite a decided change in the strength of a number of tinctures, notably of Veratrum, Aconite and Strophanthus.

The title adopted by the international pharmaceutical congress is, Conference Internationale pour l' Unification de la Formule des Medicaments Heroiques, hence it will be seen that the prime object was simply to unify the strength of preparations of potent drugs. In order to do this, the very natural sequence was to standardize the drugs. There has been more or less deviation, and extension of the idea which called together this important committee. Commissioners in the Conference and signators to the agreement, Protocole Internationale, represented practically every European country and the United States. The agreement entered upon September 20, 1906, provided for certain uniform rules to be applied to potent remedies and then these were enumerated and defined. The statement shows the progress from preparations of drugs to the inclusion of standards for the latter. Mr. George M. Beringer in his paper points out the necessity for some changes or exceptions to the general rules of the Protocol. Before the Protocol was signed on the 29th day of November, 1906, reservations were made by several governments; the statement on the part of the United States was that by signing the agreement, no further duty was assumed than that of trying to bring the ninth revision of the United States Pharmacopœia into harmony with the propositions adopted.

Article 2 of the Protocol provides that wines shall not be made of potent medicinal substances. With this the U. S. P. IX has complied by excluding all medicated wines, and the same authority also observes the other two demands, namely, for 10 percent tinctures of potent drugs, and fluidextracts representing the drugs in the proportion that already obtained in the last Revision.

The Pharmacopœia has a table which gives information of relative strengths in the two standards, which makes such detailed reference here unnecessary. The suggestion of using 70 percent alcohol as a menstruum was not generally adopted for the very good reason that the same solvent is not advised for radically dissimilar drugs. The purposes of the Protocol having been stated and historical references briefly given, a few further remarks bearing on the Ninth Revision will conclude this comment.

Even now, it is more or less difficult to refer to important changes without repeating what pharmacists have already said about the new standard, but we await with interest the expression of the medical press.

The Pharmacopœia provides standards and, in doing so, includes some descriptions and tests that are more particularly intended for manufacturers and importers. The descriptions of microscopic structure and characteristics of the powdered drugs, and some of the physical tests are important and valuable additions, which, while they may not be made use of by many pharmacists in the conduct of their business, represent the advanced thought and embody the latest methods of standardization and examination. The usefulness of the Pharmacopœia has been largely enhanced by the additions and improvements of Part II. The information supplied there should give the book a more extended use in the laboratories of medical and pharmaceutical schools; the inclusion of explanatory remarks and instruction in the details of manipulations really adds text-book value to the Pharmacopœia. E. G. E.

THE NATIONAL FORMULARY, FOURTH EDITION.

IT will become very evident that there are many more decided changes in the National Formulary, Fourth Edition, when comparison is made with previous revisions, than in the ninth revision of the United States Pharmacopœia. The fixing of September 1 as the date when this Revision shall become official would then seemingly provoke more objection than the adoption of that date for the new Pharmacopœia, as legal standard. The publication of the Formulary has, however, advanced further so that the supply of books will soon equal the demand.

Many of the changes in the National Formulary, Fourth Edition, were compelled by the recognition of authority in the Food and Drugs Act and State laws as legal standard, for up to this revision the book had been largely a formulary compiled for the convenience of pharmacists, and of course, with the idea in mind of providing uniformity in the included preparations, and of preserving the formulas that had been deleted from the Pharmacopœia. Endowed with the titled dignity of a legal standard, it became mandatory that such acceptances be based on a stronger claim than deletion from the Pharmacopœia alone. This assignment as guardian of said formulas will hereafter be largely delegated to the A. Ph. A. Recipe Book.

It is not the intention of this article to review the National Formulary, Fourth Edition, for this has been done by others, and in this issue of the JOURNAL will be found such a contribution by W. L. Scoville, vice-chairman of the National Formulary Committee of the American Pharmaceutical Association. The scope of the Pharmacopœia is controlled, at least largely so, by therapeutic considerations, while that of the National Formulary is as extensive as medical usage, and the formulas are prepared in accord with good pharmaceutical practice. In conformity with the latter view several preparations were deleted from the National Formulary, namely, because they were pharmaceutically unsatisfactory.

In revising the National Formulary the general principles followed in pharmacopœial revision were adopted. While the term mil is used in the formulas, the denomination milliliter has been retained in the text and as an equivalent in the formulas, so more correctly stated, milliliter has a preference. The metric system is used throughout. A calculation method for converting metric valuations into apothecaries weight and measure is included.

The National Formulary, Fourth Edition, resembles the Pharmacopœia in general make-up and typography, and the nomenclature also is in accord with that standard. Part I contains the formulas, Part II provides standards for drugs used in the preparations of Part I, and Part III includes special tests and reagents.

After the Committee on Standards was appointed by the American Pharmaceutical Association the value of their work as a part of the National Formulary under revision was recognized, and admirably perfects this standard. Doubtless there are defects, but these are not very serious; in fact, those of reference are of standards for drugs subject to change, such as valerates, for example, where the chemical formula is given, without directing attention to the liability of change in constitution. Also such slight discrepancies as, for instance, the uniform designation of the source of angelica fruit and angelica root.

A point worthy of comment is the interest and devotion to duty of those who labored in the perfection of both the United States Pharmacopœia and National Formulary, truly a commendatory spirit of altruism that speaks volumes. It evidences that pharmacy is worth while, or certainly such painstaking effort would not obtain, when there is no pecuniary reward. The labor should bespeak the approbation of those who benefit thereby. It is noteworthy that in the preparation of both these standards members of the American Pharmaceutical Association are the principal participants, and those who are not share equally in the honors of the accomplishment—their credit is no less. The National Formulary is published under direction and authority of the American Pharmaceutical Association and naturally the members of the organization do the work. In continuing and providing this standard the pharmacists of the country acquire a resource and guide that would be impossible except through a coöperative organization, deeply and sincerely interested in the welfare of pharmacy. It is true that the Association is recompensed for its constructive work, and for incurring business risks, but this is necessary for the perpetuation of the standard; provision must always be made for the succeeding revision; there is also the desire of providing for more research work in pharmacy, which will contribute to better standards and better pharmacy. An individual or an organization may be altruistic and still not accomplish anything worth while. The success of such moving spirit is accentuated when there is preliminary action that produces the means for doing something and conserves these forces for continued or further activity. Like service, altruism has quality. If all druggists, who are beneficiaries of the work done by the Association, through its members, would enlist in the organization, the benefits accruing to all would be multiplied.

As the title of "Aristocrat Among Pharmacopœias" has been given to the United States Pharmacopœia so also is the National Formulary, Fourth Revision, an accomplishment in which the revisers may well have pride, and the assurance of having done most excellent service for pharmacy and those who are served by its votaries, the physicians and laity.

These statements would be incomplete without reference to the valuable and constructive assistance rendered by the Hygienic Laboratory, United States Public Health Service, in compiling the Digest of Comments on the United States Pharmacopœia VIII and the National Formulary III. This service was not only very helpful but the thoroughness and completeness with which the work was done deserves appreciative mention. It might also be added that the continuation of the work will proceed by preparing similar digests of the present revisions of both the Pharmacopœia and National Formulary.

Constructive criticism makes for improvement, so the JOURNAL welcomes articles that point out defects and present progressive ideas, to the end that each revision will be an improved edition of those that have preceded. E. G. E.

THE ATLANTIC CITY MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE passing of time has brought another annual convention of the American Pharmaceutical Association near. A record of sixty-four years of work for American Pharmacy, shaping and directing the trend in so far as this was possible during this period, leaves the Association with a history in which the members have a right of pride and satisfaction. Though slow of growth, there is a slight annual increase of membership, and this year the number of new members has at this writing reached 353 and the anticipation of receiving 500 is possible. Why the additions to the membership of the Association should not show a larger increase remains one of the problems that has occupied the minds of members throughout the period of its existence, and so also the incentive which should hold them as members continuously.

The one thought that many druggists cannot appreciate sufficiently is, that pharmacy demands an organization of this kind; a body that gives thought to the professional side of the drug business, however much there is need for increasing the volume of business by sales of items more or less distantly related to pharmacy. While the American Pharmaceutical Association does not lose sight of such necessity, and provides opportunities for the discussion and development of such live topics in several of the Sections, its mission as the representative of American pharmacy cannot be neglected. Neither would this be the desire of the members nor even of those who are not affiliated. The latter are satisfied to let others do this necessary work and feel assured that there will always be a sufficient number, who are imbued with a spirit of altruism and devoted to the cause of pharmacy. This is the unfortunate situation, which is by no means peculiar to those engaged in the drug business. A survey of the promotions in every city will corroborate the statement; the delinquents are not invariably those who are unable, but quite as frequently men of means. This would apply to the Association if twice the value received would be turned back to those not interested, unless of course the come-back would be in actual money. There is absent in them that altruistic spirit which persuades the doing for others without return; their vision is obscured.

Fortunately there are many who are constituted otherwise, or a Pharmacopœia or National Formulary would be a far more difficult undertaking, and the transactions of the American Pharmaceutical Association would be devoid of the valuable papers that speak for the true spirit of helpfulness to others. Neither is it possible to overcome the critical inclination, or rather hypercritical, for by this is meant that which is destructive and not constructive. This, too, everyone realizes and permeates everywhere. Within the Association there is little evidence of this trait, for those who continue their membership from year to year share with their associates the same determined purpose of accomplishing something that contributes to the welfare of the many, regardless of whether those outside of the Association profit by their efforts; in fact, they rejoice because they have been able to be of service. If this trait could be conveyed to more the numerical strength of the Association would be increased, and less would become delinquent; the thought of a direct return must be eliminated and that of service and coöperation substituted. The one who joins for a material benefit seldom persists—membership is not a good financial investment on such basis only, but if the affiliation is accompanied by a desire to be helpful and to sustain pharmacy which dignifies the aspirant's occupation, then the returns are indeed ample. It is difficult to approximate the value of the work done by the Association, the results are evident in every walk of life, whether social or commercial.

As an example of the beneficial influence of the Association, the interview of Chairman S. L. Hilton of the Committee on the Status of Pharmacists in the Government Service with the Secretary of the Navy, referred to under Editorial Notes, may be cited. As a result an order was issued to strike out the age limit as one of the requirements for eligibility to examinations for the grade of Pharmacist in the U. S. Navy. Nineteen Hospital Stewards will thereby have an opportunity for advancement.

The meeting in Atlantic City promises to be well attended, and Local Secretary Charles Holzhauer has the program, both of entertainments and conduct of the meeting, nearly completed. In this issue will be found tentative programs of all the Sections and sessions of the Association; also of the meetings of the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties, to be held in Philadelphia, preceding the convention of the American Pharmaceutical Association in Atlantic City, September 5–9.

The completion of the United States Pharmacopœia and National Formulary, both of which become official September 1, 1916, will doubtless furnish interesting subjects for discussion. The interest along this line will be further enhanced by the address of Dr. Solomon Solis Cohen on "The Pharmacopœial Revision from a Medical Standpoint," or a related subject. All those who attended the Boston meeting of the American Pharmaceutical Association will remember his splendid effort on that occasion.

The programs of the Sections speak for abundance of work and excellent opportunities for a profitable meeting; and so far as the entertainments are concerned, the main difficulty will be in escaping from the many attractions provided by the Committee, and ever present in this popular resort.

E. G. E.

SOME OF THE CHANGES MADE IN THE NINTH DECENNIAL REVISION OF THE UNITED STATES PHARMACOPŒIA.*

BY GEORGE M. BERINGER, A.M., PH.M.

On the eve of the appearance of the Ninth Decennial Revision of the United States Pharmacopœia, it is very appropriate that the changes made in this legal authority for drugs should be discussed by pharmacists.

The present revisions of the Pharmacopœia and of the National Formulary are the first editions of these books to appear since they were specifically named in the Food and Drugs Act as the standards for the identity and quality of drugs. To revise the Pharmacopœia so that its standards shall properly fulfil this added responsibility has been the paramount thought of the revisers. Hence it may be observed that the Ninth Revision will be noteworthy for this purpose and its consequent aim at scientific accuracy, and this purpose has been the primary cause for many of the changes that will appear in this revision.

From a therapeutic standpoint, the changes made in the strength of the galenical preparations are, as a rule, negligible. For the most part, they have been minor and not sufficient to affect either the action or dosage of the preparations. As most of the potent remedies were brought into harmony with the Brussels International Protocol by the Eighth Decennial Revision, radical changes, such as were then made in the strengths of Tincture of Aconite and Tincture of Veratrum, are not now necessary.

It was to be expected that the advances and the changes occurring in medical practice, and likewise the progress of our knowledge of the composition of drugs and their therapeutic actions, would demonstrate that the requirements of that Protocol must be revised. Absolute compliance with all of its provisions is already no longer possible. In the two revisions of the Pharmacopœia that have been made since the promulgation of the International Protocol, we have given ample evidence of our good faith and adherence to the principles to which our nation as a participant in the Brussels Conference and as a signator to the Protocol committed us.

A few of the variations between the requirements of the Protocol and those of the United States Pharmacopœia are cited as examples, and the reasons for the non-acceptance of the international requirements are given. The Protocol requires that Aconite shall be "the tubers of the current year." In America this has never been considered practicable, as *Aconitum Napellus* is not indigenous nor cultivated in this country, and, under the conditions existing during the past two years, it would have been absolutely impossible to have complied with this requirement. Moreover, it is an established fact that aconite, properly stored, retains its activity for a long period, and hence this requirement was considered as unnecessary and has not been adopted in our Pharmacopœia. The Protocol specifies that Belladonna is to be "only the dried leaf." The commercial article is the dried leaves and tops, and hence the U.S.P. very correctly so defines it. The Protocol contains no standards for the tincture or extract of Belladonna, except that the latter shall contain "about 10 per cent. of moisture." The U.S.P. provides alkaloidal standards for both. The same criticism applies to the absence of standards in the Protocol for the preparations of Colchicum and Hyoscyamus. The Protocol directs that tincture of Strophanthus shall be made from the seed and not de-fatted and with a menstruum of 70 percent alcohol. We know that the fat in strophanthus is exceedingly disagreeable and nauseating, and that this fat can be removed with purified petroleum benzin without the loss of strophanthin. Moreover, 70 percent alcohol will not extract the drug, and hence the U. S. P. improves on the international preparation by the preliminary de-fatting of the seed and the use of alcohol as the menstruum.

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* Read at the meeting of the New Jersey Pharmaceutical Association, Long Branch, N. J., June 22, 1916.

The use for which a preparation is commonly administered may, likewise, necessitate a deviation from the Protocol, as adherence to its provisions would possibly prove a menace to life. As examples: Bitter almond water is commonly administered in the United States as a vehicle or flavoring medium in fairly large doses, and hence it is directed by the U.S.P. to contain not more than a mere trace of HCN. The Protocol requirement is 0.1 percent of HCN, and to follow this in the dosage in which bitter almond water is, at times, directed as a vehicle in the United States would be dangerous. The U.S.P. Syrup of Ipecac is seven times stronger than that of the Protocol. As this preparation is commonly used in the United States as an emetic, it was not deemed advisable to so reduce the strength as to render it valueless as an emetic in croup and similar affections in which it is so commonly employed.

As examples of the more important changes of strength of galenicals may be mentioned Unguentum Hydrargyri Dilutum from 33 per cent. to 30 per cent. of mercury in order to comply with the Protocol, and Syrupus Acidi Hydriodici, changed from 1.19 Gm. HI in 100 Cc. to from 1.3 Gm. to 1.45 Gm. in 100 mils.

The changes that have been made in the strength of the chemical products are, for the most part, such as were required by the commercial conditions and the quality of the products commonly dispensed as medicines. The principle of allowing for the proper variability of chemicals and for the natural variation in crude drugs has led to many modifications of the rubric requirements by which, instead of the fixed purity statements of the previous revision, there now appears in most of the monographs a variability allowance in accordance with determined conditions, and the limitations of such variability are officially defined. The following examples among the chemicals illustrate the desirability and practicability of this change, which, in many cases, has been only a rounding off of the requirements: The Eighth Revision required that Diluted Hydriodic Acid should contain not less than 10 percent HI; the Ninth Revision will state from 9.5 to 10.5 percent HI. In the Eighth Revision, Hydrochloric Acid was required to contain not less than 31.9 percent HCl; the Ninth Revision will state from 32 to 33 percent HCl. In the Eighth Revision, Ether was about 96 percent ethyl oxide; in the Ninth Revision it will be from 95.5 to 97.7 percent.

The purity of a few official chemicals has been increased. As examples: Ammonium Bromide, Potassium Bromide and Sodium Bromide have been each increased from 97 percent in the Eighth Revision to 98.5 percent of the respective absolute bromide. In a few cases the rubric is not so exacting as in the previous revision. The reasons for such modification are usually self-evident. As examples, Ferric Chloride is to contain 20 percent of Fe instead of 22 percent, and Thymol Iodide 43 percent of I instead of 45 percent.

A noticeable improvement is seen in the pharmacognostic descriptions. Here we have not only the microscopic appearance and structure of the drug described, but also descriptions of the powdered drug under the microscope. The purity rubric has been extended to the organic drugs, and these monographs commonly give the percentage of allowable admixtures of other parts of the drug plants or other foreign matters. In the organic drugs and their preparations that permit of chemical assaying, limitations are likewise fixed for the variability naturally existing in the drugs and the personal equation or error introduced in the assay processes, and in each case the alkaloidal percentage is fixed by an upper and lower limit.

The assay processes introduce several changes, such as the use of purified saw dust as a distributing medium, and the adoption of the aliquot part method. Cantharides has a definite standard of cantharidin of not less than 0.6 percent, and an assay process is now given. In Nux Vomica, the percentage of total alkaloids is fixed at 2.5 percent in place of 1.25 percent strychnine, and the preparations of Nux Vomica are all assayed for total alkaloidal content. Opium must now contain not less than 9.5 percent *anhydrous* morphine instead of not less than 9 percent *crystallized* morphine, and the lime method of assay is adopted. This increase in strength is to be noted, and likewise the determination of morphine content in the anhydrous form instead of that of the crystallized alkaloid.

Assay processes have been extended to numerous preparations not previously assayed. Among such may be mentioned Benzoic Acid, Salicylic Acid, and Citrated Caffeine; and among preparations, Liniment of Camphor and Spirit of Camphor, for which a polariscope method for the determination of camphor is now introduced. Very few pharmaceutical laboratories have the expensive polariscopes required. Hence I fear that this test is more academic than practicable, and its observance in practice will be largely confined to the State Laboratories.

The Ninth Revision will be noted for the number of innovations in pharmacopœial revision. Among these may be mentioned "Electrolytic Determination," which is especially recommended as the method for assaying zinc and mercury compounds; official methods for the "Determination of Ash," "Saponification Values," " Acid Number of Resins," " Determination of Crude Fiber," " Volatile Extractive and Non-volatile Extractive," "Determination of Alcoholic Content," "Melting Points," "Boiling Points," and "Congealing Points," with a description of "Standard Thermometers, and Solubilities." The chapter on "Sterilization" should be carefully studied by every dispenser. The chapter on "Diagnostical Reagents and Clinical Tests" is an important addition to the U. S. P., in which the example of the later revisions of some of the foreign pharmacopœias, notably the German Pharmacopœia, is followed. This contains standard formulas for the reagents used in the examination of urine, gastric contents, blood, and micro-organisms.

For the first time in the history of pharmacopœial revision, the methods for the biological assaying of drug products have been recognized. Chapter 23, in Part II, is devoted to this subject, and official processes are described by which the following drugs and their preparations *may be* assayed: Aconite, Digitalis, Strophanthus, Squills, and Dried Suprarenals, and Cannabis *must be* assayed by the official biological process. The standard adopted for the latter drug is that "Cannabis, made into a fluidextract in which one hundred mils represent one hundred grammes of the drug when assayed biologically, produces incoördination when administered to dogs in a dose of not more than 0.03 mil of fluidextract per kilogramme of weight."

The titles added to the list of pharmacopœial substances are only 66 in number. Some of these have been added because of their use as medicines necessitating standards. Among such may be mentioned: Ethyl Morphine Hydrochloride, Diacetyl Morphine and Diacetyl Morphine Hydrochloride, Sodium Cacodylate, Calcium Glycero Phosphate, Sodium Glycero Phosphate, Creosote Carbonate, and Phenolphthalein.

Commercial conditions necessitated several changes. As examples: Virgin scammony not being now obtainable, scammony root was introduced as the source for making the official Scammony Resin, and Sodium Cyanide replaces Potassium Cyanide. The high price of potash salts, due to the war, has been recognized, and permission is given to substitute the sodium carbonate in place of the potassium carbonates in Solution of Magnesium Citrate, Rhubarb preparations, etc.

Several of the additions became necessary because they are ingredients in the formulas of the Pharmacopœia. Among these may be mentioned Glucose, directed as a diluent for solid extracts; Purified Siliceous Earth as a filtering medium, Oil of Sesame as an ingredient in liniments, and Sodium Indigotindisulphonate, introduced as a coloring for Poison Tablets of Corrosive Mercuric Chloride, which are to be "tablets of an angular shape (not discoid), having the word 'POISON' and the skull-and-crossbones design distinctly stamped upon each, and to contain 0.45 Gm. to 0.55 Gm. corrosive sublimate, and the tablets to be colored blue."

The preparations added have not been numerous, the tendency being to leave to the National Formulary the providing of formulas for preparations. Milk of Bismuth and Milk of Magnesia are two of the popular remedies, however, that have been given pharmacopœial standing.

Pharmacists will be pleased to learn that the list of powdered extracts has been greatly extended, and in several instances formulas for both the pilular extract and the powdered extract of the same drug are very properly given. The instructions of the Pharmacopœial Convention to adopt general formulas wherever possible has been partially carried out by the introduction of general instructions in the aromatic waters, and by general formulas and classifications in the fluidextracts and tinctures.

Two hundred and forty-two titles have been dismissed from the Pharmacopœia. Thirty-eight of these were fluidextracts, seven were pills, and ten were tinctures. A majority of these preparations have been included in the revised National Formulary, and so the National Formulary will relatively become more important because of these deletions from the Pharmacopœia.

Twenty-nine changes in the Latin titles have been made, and 28 changes in the English names. As examples: Alcohol Absolutum is now Alcohol Dehydratum; Aqua Hydrogenii Dioxidi is now Liquor Hydrogenii Dioxidi; Cardamomum is now Cardamomum Semen, the decorticated seed being the official drug; Elixir Adjuvans is now Elixir Glycyrrhizæ; Hyoscinæ Hydrobromidum is now Scopolaminæ Hydrobromidum; Rhamnus Purshianæ is now Cascara Sagrada.

One of the minor changes that has attracted, nevertheless, a great deal of attention is the adoption of the word "milliliter" in place of "cubic centimeter," and the word "mil" in place of "Cc." In this we have followed the example of the British Pharmacopœia and accepted the authority of the United States Bureau of Standards for the sake of absolute accuracy.

Synonymy will not be treated through the Index as in the Eighth Revision, but following each Latin title will be the official English title and the more commonly used synonyms. In addition to this, there will be official abbreviation printed in heavy type, with the hope that physicians will adopt these official abbreviations in prescription writing, so that there will be an official authority for the abbreviations for the official titles commonly used in prescriptions.

THE FOURTH NATIONAL FORMULARY.

BY WILBUR L. SCOVILLE.

The new National Formulary, like Cæsar's "all Gaul," is divided into three parts. This is also an imitation of the earliest U. S. Pharmacopœia, which found the arrangement of the formulas in alphabetical order by themselves, followed by the materia medica, and lastly by the reagents and tests, the best plan. They too put the formulas first, and the materials which composed them followed after.

Part I of the Formulary is the part which corresponds to the old preceding editions; and is still the main part of the book. The principal work of the National Formulary Committee has been applied to this part.

It is preceded by a historical chapter and preface, a list of additions, deletions and changed titles, a chapter on sterilization, and some preliminary notices. These summarize the changes so far as titles are concerned, but do not suggest the changes in the formulas themselves, which are important.

There are twelve introductory paragraphs or chapters in Part I, which describe twelve classes of the preparations and introduce each. These twelve titles are the only ones which do not apply directly to specific preparations. Some of the important changes in preparations may be classified as follows:

Elixirs.—Seventy-nine are now official, which is a small decrease in number. Most of the older formulas remain unchanged, but three new basic elixirs have been introduced,—Compound Elixir of Almond, Compound Elixir of Cardamom, and Compound Elixir of Vanillin. These are especially designed for elixirs of low alcoholic strength, and contain but 5 to 10 percent of alcohol. The Bromide elixirs have been reduced in alcoholic strength, also a few others, but it was thought wise to allow the flavor of these to remain the same as before. That "bone of contention," Compound Digestive Elixir, has been allowed to sink into "innocuous desuetude"; saccharin is used less freely than before, but still enters into a few preparations. The list is thirteen less than the N.F. III contained, which looks "unlucky" for some elixirs. It is still the second largest class in the book, and can afford to lose some of its members. The Harrison Law induced a slight change in Elixir Terpin Hydrate with Diacetyl-Morphine, the content of the latter being decreased.

Emulsions are also slightly decreased in numbers, but are improved in formulas; eight are now official, including two taken from the U.S.P. VIII.

Emplastra (plasters) are disappearing from professional pharmacy, and the N.F. has allowed twelve to "come off" and has added only one, out of compliment to the U.S.P.

Extracts.—Eight have been added (six from the U.S.P.) and seven dismissed, and standards with assay processes have been added to extracts of Cinchona, Conium, and Ignatia. Pharmacists should note these standards and see that their stock conforms.

The Fluidextracts are now the largest class of preparations in the Formulary, comprising 90 titles, of which 50 were added, and 30 of these were taken from the U.S.P.

The last N.F. Revision Committee has not, however, honored the tradition "When the Pharmacopœia forsakes thee, then the National Formulary will take thee up," but has said, "No! No!" to a number of preparations which the Pharmacopœia has dropped.

The National Formulary has come to a more discriminating age, and is no longer content to wear everything that U.S.P. casts off. For instance, no Coca preparations are now official in either book, because these have all proved unworthy of confidence, being so unstable that no standard can be maintained. The Viburnum Opulus of the N.F. IV is a different drug from the Viburnum Opulus of the U. S. P. VIII, and its preparations must conform to the new standards. And when the U.S.P. Committee decided that the available formulas for elixir of the phosphates of iron, quinine and strychnine were all unsatisfactory, and the preparation was dismissed from the Pharmacopœia, the N.F. decided not to be "the goat" and did not swallow the discarded can. So, while the N. F. did take up a large number of preparations which the U.S.P. discarded, those which were adopted are sound pharmaceutically, and are in active demand.

Standards and assay processes are included for fluidextracts of Cinchona (aqueous), Colchicum Corm, Conium, and Stramonium. These are in accord with previous standards, but pharmacists should note that they still hold, legally, and see to it that their stock conforms.

The *Fluidglycerates* are officially introduced to American Pharmacy by a short chapter on their character and uses, and five typical preparations. Whether this class shall increase or decrease in future editions will depend upon the success which these may meet.

Glycerite of Bismuth now leads the four preparations in this class, and is standardized. This preparation is very liable to vary in manufacture, and the standard is needed to secure uniformity.

The *Concentrated Infusion of Gentian Compound,* which was more properly a tincture, has now been compromised with the title "Infusum Gentianæ Compositum," wherein the original tincture infusion is directed to be made and then diluted with water. The "then" may cover an unlimited period of time, and the tincture can be prepared in any desired quantity, to be stored and await the time of dilution. But the title still remains "Infusum," etc.

Liniments.—These have disappeared and no new ones have come, but the

Liquors have changed considerably. Fifteen have been dropped and eleven added, making a net loss of four. Among the new ones is Liquor Alumini Acetatis, which is an old title but a new preparation. This is Burow's Solution and a true aluminum acetate, while the solution formerly official under this title is now correctly recognized as Liquor Alumini Subacetatis. Some confusion is liable to result in this change, and pharmacists should be careful in supplying the article desired.

Changes will be found in the formulas for the antiseptic solutions and several of the iron solutions, and assay processes are appended to some of the latter. Next to the Fluidextracts the Solutions will show more changes than in any class of preparations.

Mixtures are increased by two and decreased by five, twenty remaining. This class shows few changes in the formulas, but some changes in titles which are important.

Mulla are new as a word, but old as a classs. The former title Unguenta Extensa is too cumbersome, and the simple title Mulla it is thought will prove much more satisfactory. The same five are official, and are now more easily classified.

Nebula or sprays are a new class to the N.F. Five formulas for this popular form of medication are now included, and these should prove useful in practice.

Oil-sprays are growing in service, and *Spirits* are increased by four, and decreased by nine, leaving nine official. The old Spiritus Cardamomi Compositus, which was designed to produce an oil-solution in imitation of Tincture of Cardamom Compound, has been displaced by a totally different Spiritus Cardamomi Compositus, which is much stronger and of very different composition. The latter is used to make the new Compound Elixir of Cardamom. This is another change which is liable to cause some confusion for a time.

Compound Spirit of Vanillin is likewise introduced as a component for the preparation of the Elixir Vanillin Compound.

Syrups have won a dead heat in adding nine and dropping nine, so the number remains, as before, 44. Five of the new syrups are taken from the U. S. P. VIII and the others include syrup of Ammonium Hypophosphite, Compound Syrup of Figs, Syrup of Iodotannin and Syrup of Blackberries.

Tinctures have gained five in adding eighteen and dropping thirteen. Among the additions are Tincture of Cactus Grandiflorus, which is made from the fresh drug, Tincture of Caramel, which is designed to produce more uniform coloring when caramel is used in small quantities, and Crocated Tincture of Opium, which is a standardized and assayed preparation uniform in strength with the opium tinctures of the U.S.P. IX.

Antiperiodic Tincture (Warburg's Tincture) is now under two titles, the second calling for Antiperiodic Tincture without Aloes, so there can be no mistake when Warburg's Tincture is called for.

Tincture of Citrochloride of Iron now contains considerably more sodium citrate, and a green tincture is always assured.

Tincture of Ignatia has a standard of 0.2 percent of alkaloids. Compound Tincture of Viburnum is now made from high bush cranberry bark, and not from what is sold as cramp bark.

Troches have also split even in dropping eight titles and adding eight. The troches which remain have all been improved, so that more satisfactory results may be expected from these preparations. Here the changes will be found mostly in the formulas.

Ointments show little change in composition or number, four having been added (from the U.S.P. VIII) and three dismissed.

Wines are given a last stand in the N.F. The Pharmacopœia has dropped them all, and the N.F. has taken up the more important of those in use. Two wines of Colchicum and Wine of Ipecac are standardized and assay processes are included. Wines are a passing class of pharmaceuticals, but are likely to linger for some time yet. Look out for the standards in your stock.

The above indicates in brief the more obvious and important changes in the formulary portion of the National Formulary; Part II comprises the simples which are used in the formulas in Part I and are not official in the U.S.P. IX. No article which is not used in Part I is included in Part II. This part is the work of the Committee on Standards of the American Pharmaceutical Association, and is a new feature of the Formulary. Its purpose is obvious, to provide definitions and standards for all articles used in the Formulary, so that there can be no question as to what is intended in any given case. This brings it nearer to the Pharmacopœia in appearance and style than preceding editions, but there is one very essential difference between the Pharmacopœia and the National Formulary which will keep them distinct and will avoid conflict. The Pharmacopœia is an authority on therapeutics, and its scope is controlled by therapeutic considerations, but the National Formulary does not vouch for any therapeutic efficiency, and recognizes any preparation of pharmaceutical soundness which is used to a marked extent by physicians. The Pharmacopœia is controlled by the "regular" school of practice, but the National Formulary makes no distinction between allopaths, homeopaths, osteopaths, chiropractors or any other school of practice. Its mission is to perfect or select the pharmaceutical qualities of the formulas, and to allow the physicians as a whole to adjust or judge the therapeutics. Hence there is not likely to develop any rivalry or antagonism between the two books. Since both Parts I and II contain assays and tests which require test solutions and some special test directions, it seemed wise to embody the more special tests in Part III. This is taken directly from the U.S.P. IX, by permission of the Board of Trustees, and is designed to make the Formulary more complete as a working book. Volumetric solutions and the usual test solutions are not included, although employed in N.F. tests, because these are made by standard and well-known methods. Only the special tests are included. This part will doubtless be used more by manufacturers than by retail pharmacists, but the latter should not overlook the fact that the standards of the National Formulary IV apply after September 1, 1916, to all stock sold under the titles therein. Pharmacists should go over their stock, and set aside for readjustment all preparations not conforming to the new standards.

ALCOHOL DETERMINATION BY DISTILLATION.

BY A. B. LYONS.

An official method for the determination of alcohol in pharmaceutical preparations appears in U. S. P. IX and also in N. F. IV. The principle is the familiar one of distilling from an accurately measured volume of the alcoholic liquid, diluted with sufficient water, an equal volume of distillate, the specific gravity of which indicates, by reference to an alcoholometric table, the percent by volume of anhydrous alcohol. It is essential that the measurements before and after distillation shall be made with exactness, and it goes without saying that in all exact measurements of liquids temperature is an important factor.

It has been the common practice to make these measurements at 60° F., the standard temperature for alcohol determinations. The air temperature in most laboratories is many degrees higher than this, the year around, and where the pycnometer is used for determination of the specific gravity, condensation of atmospheric moisture makes accurate weighing difficult. Hence it has become customary to make the weighing at room temperature, although the measurement has been made at 60° F., the necessary correction being taken from an empirical table, such as is given in U. S. P. IX.

It is simpler to make the measurement also at room temperature, taking care only that this temperature is the same for both the measurements. The principle is sound, and *so long as the volume of the distillate is the same as that of the sample* taken for distillation, the results will be correct, provided the whole of the alcohol passes over by the time this volume is obtained—*i.e.,* in case of a liquid containing not more than 25 percent alcohol.

If this liquid contains more than 25 percent of spirit, it is necessary to carry this distillation further and the common practice has been to bring the volume of the distillate to just double that of the sample distilled. Now, however, we may no longer make our measurements at any but the standard temperature, viz.: 60° F. The reason for this is that the coefficient of expansion for mixtures of alcohol and water varies greatly with the proportion of alcohol present, being, for example, four times as great for 95 percent alcohol as for 8 percent. Consequently the error in the first measurement will be materially greater than that of the second if both are made at the same temperature.

The measurements may, however, both be made at 60° F., for the reason that volume percentages of alcohol are true only at 60° F. A 50 percent alcohol is one which contains at 60° F., one-half its volume of anhydrous alcohol, measured also at 60° F. If the temperature is raised to 75° F., the dilute spirit will contain more than one-half its volume of anhydrous alcohol measured at 75° F.

In determining alcohol in a liquid containing more than 50 percent, some advise to distil off four volumes for one, determining the percent of alcohol in the distillate and multiplying this figure by four. Obviously if this is done the error arising from making the measurements at room temperature will be considerably greater than in case the distillate is double the volume of the sample.

The official directions are to make the measurements at any convenient temperature, being careful only that both are made at the same temperature. The error involved where the temperature is not higher than 25° C. is negligible in case the percentage is not above 30. In case of stronger spirit in warm summer weather, the error may easily exceed 0.5 percent.

The official process should therefore be amended to require that both measurements be made at 60° F. The weighing can then be made at any convenient temperature, the percent being deduced from the official alcohol tables.

ACETYLSALICYLIC ACID.

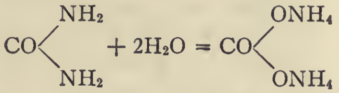
While the loosely worded test of the British Pharmacopœia for this article is quite unsatisfactory, there can be no doubt that the melting point has not been, as was recently alleged, fixed too high by that authority. The intensity of the ferric-chloride color reaction is undoubtedly in more or less direct relationship with the depression of the melting point, and, of course, with the amount of impurities present. An interesting series of experiments has recently been carried out by Tsakalotos and Horsch (Bull. Chem. Soc., 1915, 17, 401), who have attempted to study the rate of decomposition of acetylsalicylic acid in aqueous solution at 23°, 50°, and 60°, the rate of decomposition being measured by removing 25 Cc. of the solution at given intervals and titrating it with one fiftieth-normal barium hydroxide. At 50° they also carried out a series of electrical conductivity measurements. In both cases the curves showed two minima, the times at which these occur being found to be dependent on the temperature. It appears to be generally assumed that the impurities and decomposition-products of acetylsalicylic acid are traces of salicylic acid and of acetic acid. But, although this may be, and probably is, to a great extent true, there is little doubt that the matter is not quite so simple as that generally assumed. There is no doubt that in the course of the reaction by which some manufacturers prepare acetylsalicylic acid a secondary reaction goes on. Whether it be while in the nascent state only or not cannot be definitely decided, but the acetylsalicylic acid first formed in the reaction itself reacts upon unaltered salicylic acid forming a further substitution-product, acetylsalicyl-salicylic acid, a product which probably decomposes in contact with water into acetosalicylic and salicylic acids, the former in turn decomposing into acetic and salicylic acid. Hence the quantitative experiments of Tsakalotos and Horsch may well be considered indefinite, unless the acid experimented upon was free from acetylsalicyl-salicylic acid. There is reason to believe that the true melting point of acetylsalicylic acid is nearer 136°–137° than to any other figure, and that unless prepared by certain methods the impurities above indicated are exceedingly difficult, if not impossible, to eliminate.—E. J. Parry in *Chem. and Drug.,* June 3, 1916.

SCIENTIFIC SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

UREASE.*

BY H. A. B. DUNNING.

Urease is an enzyme found in numerous bacteria, fungi, and in certain higher plants. It readily converts urea into ammonium carbonate and, on this account, is not only interesting, but extremely useful as a diagnostic agent.



$$CO\begin{cases}NH_2\\NH_2\end{cases} + 2H_2O = CO\begin{cases}ONH_4\\ONH_4\end{cases}$$

The presence of urease in soy bean (*Glycine hispida*) was first observed by Takeuchi, and was afterwards applied to the quantitative estimation of urea by E. K. Marshall, Jr., Ph.D., of the Physiological Chemical Laboratory of the Johns Hopkins Medical School.

To estimate the amount of urea in urine, it is only necessary to determine, with decinormal hydrochloric acid and methyl orange, the degree of natural alkalinity of a portion of the specimen that has not been treated, and compare this, as to alkalinity, with an equal quantity of the same specimen which has been treated with the enzyme. The difference, of course, represents the ammonium carbonate formed by the breaking up of the urea present; the amount of this urea can be readily ascertained by calculating its equivalent in ammonium carbonate as hereinafter shown.

This method yields accurate results by a procedure much simpler than any heretofore employed; the other accurate methods in general use all require an independent determination of the pre-formed ammonia, and generally are too complicated to be favored for rapid clinical work. It is because of such difficulties and complications that the various older methods, which require the decomposition of urea by an alkaline solution of sodium hypobromite and the measurement of the nitrogen evolved, are still used for clinical purposes; these hypobromite methods, however, as is well known, are very inaccurate, the results being vitiated by the presence of unknown quantities of ammonium salts.

In developing the urease method, Dr. Marshall first obtained the enzyme, in an aqueous extract of ground soy beans, by treating them with water, precipitating much of the protein matter with hydrochloric acid, and clearing the solution by filtration; this solution was preserved with toluol, but could not be satisfactorily kept longer than about a week.

The soy bean extract yields accurate results, but possesses certain disadvantages, especially when rapid estimations are desired. As previously stated, it deteriorates on standing and must, on this account, be freshly prepared at short intervals, and, to ascertain the extent of its inherent effect on methyl orange, a preliminary determination or titration of the extract, itself, must be made. Besides these objections, the larger amount of soy bean extract required to produce rapid conversion of urea makes a solution that becomes very cloudy upon the addition of acid, due to the precipitation of more of the proteins; this cloudiness interferes with a close observation of the color change and thus causes a sacrifice of the accuracy that follows sharp end reactions. These disadvantages led to the preparation of urease.

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* Read before Scientific Section, A. Ph. A., San Francisco meeting.

Urease is a fine, almost white powder with little taste or odor; it is soluble in slightly alkaline water and presents the urea-converting enzyme of soy bean in a condition approximating purity. It is practically free of water-soluble proteins that are precipitated by hydrochloric acid and of proteins that are insoluble in water. Aqueous solutions deteriorate after standing a few days.

For the estimation of urea, urease possesses the following advantages over the soy bean extract: (*a*) It is practically neutral to methyl orange, which characteristic renders unnecessary the blank determination that is required for the alkaline soy bean extract; (*b*) it can be preserved in dry form, suitable for immediate use, indefinitely; (*c*) it is readily soluble in urine; (*d*) it gives a clear end reaction, since it yields very little cloudiness on the addition of acid during titration, and, consequently, can be used in larger proportions without the sacrifice of accuracy that follows the use of increased quantities of the soy bean extract.

The procedure for using urease is identical with the original technic of Marshall, excepting that 25 milligrammes (one tablet) of this dry substance are substituted for two cubic centimetres of the liquid soy bean extract. For the more rapid decomposition of the urea, two modifications of his original method are suggested by Dr. Marshall: first, the use of a greater proportion of the enzyme to the urine treated; second, an increase of temperature to 35°–40° C., during the catalytic process.

DIRECTIONS FOR USING UREASE.

Apparatus and material: Besides the urease, which for convenience in the test may be had in 25 milligramme tablets, there are required four 200 cubic centimeter Erlenmeyer flasks with cork stoppers; one 50 cubic centimeter glass-stoppered burette; one 5 cubic centimeter bulb pipette; one small glass mortar; 100 Cc. solution of methyl orange; 1000 Cc. decinormal hydrochloric acid and 50 Cc. toluol.

For Urine.—Put 1 or 2 cubic centimeters of toluol into each of two Erlenmeyer flasks of 200 cubic centimeter capacity. Into one of the flasks, introduce exactly 5 cubic centimeters of a specimen and 100 cubic centimeters of distilled water; stopper the flask with a cork. Place 25 milligrammes urease or crush a tablet of same weight in a small glass mortar, and dissolve it in about 5 cubic centimeters of water. Transfer this solution, without loss, into the other flask containing toluol, and rinse the mortar with several portions of distilled water until about 100 cubic centimeters have, in this way, been added to the contents of the second flask; now add exactly 5 cubic centimeters of the urine specimen and stopper with a cork.

Agitate each flask thoroughly, to mix its contents, and allow both flasks to stand at room temperature over night, or, at least, eight hours, for the slow method. Should it be desired to use the rapid method, the procedure is exactly the same, excepting that two tablets are used for a test and the mixture containing the specimen is digested at about 40° C. for one hour.

The test may be completed in fifteen minutes by using 1 cubic centimeter of urine specimen, 50 milligrammes of urease, and digesting the mixture at 40° C. for about fifteen minutes. The factor would in this case be the whole number, 3, instead of the decimal, .6 (see last paragraph).

After the lapse of the proper time, the two solutions should be titrated to a distinct pink color with decinormal hydrochloric acid, using methyl orange as an indicator.

Should it be desired to make a large number of determinations at one time, the 5 cubic centimeter control portions of the several specimens may be titrated, as to existing alkalinity, with decinormal hydrochloric acid and methyl orange, one after another, in the same flask, at the time the portions to be examined for urea are prepared in separate flasks, for digestion; also, in such cases, a sufficient amount of urease for all the determinations may be rubbed up in a mortar, with a measured quantity of distilled water, and an aliquot portion, with 100 cubic centimeters of distilled water, added to each of the separate specimens that are to be treated with the enzyme.

For Blood.—Either of two procedures may be used. One is the method given by Dr. Marshall in his paper, " A New Method for the Determination of Urea in Blood," published in the *Journal of Biological Chemistry,* vol. xv, No. 3, Sept., 1913.

The other method, also suggested by Dr. Marshall, is to draw 5 cubic centimeters of blood from a vein with a hypodermatic needle, into a five cubic centimeter pipette, and immediately transfer the specimen to a test-tube, containing 1 to 2 cubic centimeters of one percent sodium oxalate solution. To this is added 25 milligrammes of urease, previously dissolved in 5 cubic centimeters of water. This mixture is allowed to stand until the urea of the blood is decomposed; at ordinary room temperature, one-half hour is usually sufficient. It is better, however, to place the test-tube in a beaker of water at 30° to 40° C. for one-half hour. After the urea has been changed, the contents and sufficient washings of the tube are transferred to a cylinder. The ammonia is then removed by a current of air, collected in fiftieth-normal hydrochloric acid and titrated with fiftieth-normal sodium hydroxide.

CALCULATING UREA CONTENT.

As the purpose in using urease is to convert the urea present in a specimen into an easily estimated substance—ammonium carbonate—and as the amount of this salt produced from this source by the enzyme is indicated by the increased alkalinity of the specimen to methyl orange, it is obvious that the quantity of standard hydrochloric acid required to exactly neutralize the contents of the flask containing urease, less the quantity required for the control specimen, corresponds to the ammonium carbonate formed by the conversion of the urea originally present in the specimen.

By the equation appearing at the beginning of this paper, it will be readily seen that 60 grammes of urea would be converted, by urease, into 96 grammes of ammonium carbonate, which amount would require 72 grammes of standard hydrochloric acid to neutralize it.

As this quantity (72 grammes) of hydrochloric acid is contained in twenty thousand cubic centimeters (20,000 Cc.) of decinormal ($\frac{N}{10}$) hydrochloric acid solution and is equivalent to 60 grammes of urea, as represented by 96 grammes of ammonium carbonate, it follows that one twenty-thousandth (1/20,000) of this quantity, or one cubic centimeter (1 Cc.), of decinormal hydrochloric acid would be the equivalent of one twenty-thousandth of 60 grammes—three milligrammes ($60 \div 20{,}000 = .003$); therefore, each cubic centimeter of decinormal hydrochloric acid required to neutralize an enzyme treated specimen that is in excess of the number of cubic centimeters required to neutralize the control specimen represents 3 milligrammes of urea, and, as the 5 Cc. specimen is the one two-hundredth part of a liter, it will be only necessary to multiply the number of cubic centimeters of the decinormal hydrochloric acid solution, in excess of the control's requirements, by the factor, .6($.003 \times 200 - .6$), to ascertain the urea per liter, when estimating the daily output.

Analytical Laboratories, Hynson, Westcott and Dunning, Baltimore.

CONTRIBUTED AND SELECTED

STUDIES ON THE QUANTITATIVE ESTIMATION OF ALKALOIDS BY MEANS OF IMMISCIBLE SOLVENTS.*

BY GEORGE D. BEAL AND HARRY F. LEWIS.

I. INTRODUCTION: DISCUSSION OF THE PROBLEM.

One of the oldest and most widely used methods of alkaloidal assay is based upon the general principle that alkaloids themselves are quite insoluble in water and soluble in organic solvents, while their salts are soluble in water and insoluble in the organic solvents. The method of alkaloidal assay based upon this principle is known as the "shaking out" process familiar through its connection with the Dragendorff[1] method of plant analysis and the Stas-Otto[2] poison assay. It is assumed that the alkaloidal salt is practically insoluble in organic solvents and the alkaloid insoluble in neutral aqueous solutions. It also assumes that the salt is neither hydrolyzed by the aqueous solvent nor decomposed by the organic solvent. Both Dragendorff and Otto certainly realized that the principles were not absolute. Dragendorff made exception to the rule in the case of the almost quantitative removal of caffeine and the removal of traces of veratrine by benzene and of theobromine, colchicine, papaverine, narceine and traces of narcotine by chloroform from acid aqueous solution of the alkaloids. Otto recognized the fact that ether took up traces of colchicine, papaverine, narcotine, veratrine and atropine from their acid solution.

In most alkaloidal assays of this type, the acid aqueous solution obtained by the extraction of the sample with dilute acid is shaken out with the organic solvent, in order to remove from the mixture those substances which might later appear with the alkaloid, causing inaccurate results in the assay. Such substances are coloring matter, essential oils, bitter principles, tannins, etc. After this the acid aqueous solution is made alkaline and shaken out with more immiscible solvent, removing the alkaloid in more or less pure condition. Purification is completed by shaking out this chloroform or ether solution with acid, making the acid solution alkaline and shaking out with more chloroform or ether. This is done several times. Finally, the organic solvent is removed by evaporation, and the residue determined by direct weight or by dissolving in standard acid and titrating the excess with standard alkali.

During the process, several sources of error are being introduced. In the first place, the alkaloidal salt may be slightly soluble in the organic solvent. There is also the possibility of the salt being hydrolyzed by the water present into free alkaloid and acid. This free alkaloid would be easily soluble in the organic solvent. There are some cases known where the organic solvent either decomposes the alkaloid or else combines with it. These factors may cause a decrease in the amount of alkaloid in the acid solution with a corresponding decrease in the total alkaloid at the end of the assay. During the removal of the alkaloid from an alkaline solution by extraction with organic solvent, any insolubility of the alkaloid in the solvent and solubility in the alkaline solution will cause low results. This last, however, is not a great source of error, except in the extraction of certain alkaloids with ether. And finally, the shaking out of the alkaloidal solution in organic solvent introduces the problem of the possible insolubility of the salt formed in the acid solution or, if not its insolubility, its slow solubility. This is very apparent in the case of the salts of strychnine.

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* This paper presents the essential parts of the thesis presented by Mr. Lewis in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Chemistry in the Graduate School of the University of Illinois.

It is the purpose of this work to obtain such results as will describe the partition of the alkaloid between the acid layer and the immiscible solvent, using different acids under different concentration conditions. In order to obtain more complete data, the equilibrium conditions were determined, starting with an acid solution of the alkaloid and, as well, shaking out the solution of the alkaloid in organic solvent with an acid. Thus it is hoped that the following conditions might be established for each alkaloid:

(*a*) Which salt is most insoluble in chloroform or ether, and what concentration of acid is most favorable to this condition.

(*b*) Which acid, and in what concentration, removes the alkaloid most completely from its solution in chloroform or ether.

In order to put the results obtained in the form most quickly available, a new term, that of *extraction factor,* has been introduced and the factor calculated for the different sets of conditions obtained in the course of the research. By *extraction factor* is meant the ratio of the amount of alkaloid in the layer of added solvent to the amount originally present in the first solution. For practical purposes, this would be a far better value to have than that of the partition ratio or the sum of the partition ratios for the different alkaloidal molecular species present. The extraction factor shows at a glance the completeness of the extraction, an indication of the value of extraction under those conditions. The partition ratio tells only the partition of one molecular species between two layers of equal volume, by definition of the term *partition ratio.*

II. HISTORICAL.

Attention was first called to the quantitative solution of the problem through an article published by Dr. C. Kippenberger[3] in 1897. In this paper he states clearly the possibilities of error in alkaloidal estimation through hydrolysis of the salt with the subsequent solution of the free alkaloid. He suggests the use of chloroform or chloroform containing a little alcohol as solvents.

Three years later Kippenberger[4] published a second paper, in which he endeavored to establish the question on a firmer basis. He worked with the alkaloids strychnine, brucine, atropine, morphine, aconitine, veratrine, papaverine, narceine, codeine, emetine, pelletierine, cocaine, quinine, narcotine, coniine, sparteine, thebaine, hyoscyamine, daturine, scopolamine and the base caffeine. For shaking out he used chloroform and ether.

The action of the salts of the following acids was studied: Hydrochloric acid, 21.9 percent, HCl; sulphuric acid, 40.1 percent, H_2SO_4; tartaric acid; oxalic acid. In some cases, sodium chloride was added to the acid solution and its effect observed.

The alkaloid was dissolved with an excess of acid in 70 Cc. of water, and 50 Cc. of the immiscible solvent added. This mixture was shaken in a separatory funnel for about three minutes. After fully clearing, the layers were separated and the chloroform or ether layer washed with a few Cc. of water. The organic solvent was then evaporated on a water-bath and the residue, alkaloid plus alkaloidal salt, dried over concentrated sulphuric acid. The amounts of alkaloid and alkaloidal salt were determined in the following manner; the residue was dissolved in an excess of $\frac{N}{50}$ standard acid and the excess acid titrated back with $\frac{N}{50}$ standard alkali. This value for acid neutralized by alkaloid indicated the amount of free alkaloid present in the residue. The solution was then made alkaline with a slight excess of sodium hydroxide and extracted again with chloroform. The amount of total alkaloid was obtained by evaporation of the solvent and solution of the residue in standard acid with titration for excess acid as before. Subtraction of the first value, that of the free alkaloid from the second, or total alkaloid value will give the amount of alkaloid present in the residue as salt.

The results are found in the following tables. The column containing the strength of acidity was compiled by the authors of this paper, from the data of Kippenberger.

TABLE I.

Extraction of an Alkaloid by Chloroform from Its Solution in Hydrochloric Acid (Kippenberger).

Alkaloid solution in 70 Cc. water.	Amount of alkaloid in 50 Cc. $CHCl_3$.	Indicator.	Strength of acid.	Alkaloid.	
				Free.	Salt.
Gm.					
0.2 Strychnine	0.0910	Azolitmin	0.15N	0.0114	0.0806
0.2 Brucine	0.0798	Azolitmin	0.075N	0.0056	0.0742
0.2 Atropine	0.0014	Azolitmin	0.075N		
0.2 Morphine	......	Azolitmin	0.075N		
0.2 Aconitine	0.0971	Azolitmin	0.03N	0.0158	0.0813
0.2 Veratrine	0.0807	Azolitmin	0.075N	0.0077	0.0730
0.2 Codeine	Trace	Azolitmin	0.03N		
0.2 Cocaine	0.0021	Azolitmin	0.015N		
0.2 Quinine	Trace	Azolitmin	0.03N		

TABLE II.

Extraction of an Alkaloid by Chloroform from its Solution in Sulphuric Acid (Kippenberger).

Alkaloid solution in 70 Cc. water.	Amount of alkaloid in 50 Cc. $CHCl_3$.	Indicator.	Strength of acid.	Alkaloid.	
				Free.	Salt.
Gm.					
0.2 Strychnine	Trace	Azolitmin	0.17N		
0.2 Brucine	0.0020	Azolitmin	0.17N		
0.2 Atropine	......	Azolitmin	0.034N		
0.2 Morphine	......	Azolitmin	0.034N		
0.2 Aconitine	0.0120	Azolitmin	0.017N	0.0120	
	0.0064	Azolitmin	0.085N	0.0064	
	Trace	Azolitmin	0.255N		
0.2 Veratrine	Trace	Azolitmin	0.017N		
0.2 Codeine	......	Azolitmin	0.034N		
0.2 Quinine	......	Azolitmin	0.034N		

TABLE III.

Extraction of an Alkaloid by Chloroform from Its Solution in a Mixture of Hydrochloric Acid and Sodium Chloride (Kippenberger).

Alkaloid solution in 70 Cc. water.	Amount of alkaloid in 50 Cc. $CHCl_3$.	Indicator.	Strength of acid.	Alkaloid.	
				Free.	Salt.
Gm.					
0.2 Atropine, 14 Cc. NaCl	0.0192	Azolitmin	0.075N	......	Trace
0.2 Atropine, 14 Cc. NaCl	0.0149	Azolitmin	0.015N	......	Trace
0.2 Quinine, 14 Cc. NaCl	0.0100	Hæmatoxylin	0.03N	0.0037 0.0063	Acid salt Neutral salt
0.2 Aconitine, 14 Cc. NaCl	0.2160	Azolitmin	0.017N	0.0306	0.1854
0.2 Quinine	0.0057	Hæmatoxylin	0.03N	0.004 0.0017	Acid salt Neutral salt

TABLE IV.

Extraction of an Alkaloid by Chloroform from Its Solution in Tartaric Acid (Kippenberger).

Alkaloid solution in 70 Cc. water.	Amount of alkaloid in 50 Cc. $CHCl_3$.	Indicator.	Strength of acid.	Alkaloid.	
				Free.	Salt.
Gm.					
0.2 Strychnine................ 0.4 Tartaric Acid............	0.0020	Azolitmin	......		
0.4 Brucine.................. 0.4 Tartaric Acid............	0.0032	Azolitmin	......		

TABLE V.

Results of Shaking Out the Acid Alkaloidal Solution with Ether, Under the Same Conditions as Before (Kippenberger).

FROM HYDROCHLORIC ACID SOLUTION.

Ether took up:

Narcotine................0.0002 grammes.

Caffeine..................0.0112 grammes, as free caffeine.

The following were found in noticeable traces:

Aconitine, narceine, and emetine.

None of the other alkaloids gave up a trace to ether.

FROM SULPHURIC ACID SOLUTION.

Ether took up:

Caffeine..................0.0083 grammes as free caffeine.

The following were found in noticeable amounts:

Aconitine, papaverine, narceine, emetine and narcotine, also very slight traces of veratrine, strychnine, and codeine.

THE ADDITION OF SODIUM CHLORIDE TO THE SOLUTIONS GAVE THE FOLLOWING RESULTS:

(*a*) From hydrochloric acid in noticeable traces:
Narcotine, atropine, and quinine.

(*b*) From sulphuric acid solution:
Aconitine.

Ether removed neither brucine nor strychnine from tartaric acid solutions.

In 1901, Hans Proelss[5] gave a short description of the behavior of alkaloidal solutions toward different solvents. The work was divided in two parts: The first to determine the best solvent for the alkaloids as a class, and the second, the best solvent for the individual alkaloids. He compared the relative extractive powers of ether, chloroform, and benzene, and also mixtures of ether and chloroform, and alcohol and chloroform, for the alkaloids picrotoxin, veratrine, strychnine, atropine, codeine, and morphine. His method consisted in dissolving 0.1 gramme of alkaloid in 50 Cc. of water containing a few drops of hydrochloric acid. After making alkaline with sodium carbonate, the aqueous solution was extracted three times with the solvent. He states that constant results could not be obtained of sufficient accuracy to be anything more than comparative.

1. The Best Solvent for Alkaloids in General.

Solvent.	Results.
Ether	Very good with colchicine, brucine.
Chloroform	Very good with colchicine, brucine, digitalin, veratrine, atropine, strychnine.
Chloroform and ether	Very good with colchicine, atropine, veratrine, picrotoxin.
Chloroform and alcohol	Very good with colchicine, veratrine, digitalin, atropine, codeine, morphine plus potassium bicarbonate.
Benzene	Very good with colchicine, strychnine, atropine, codeine, picrotoxin.

In conclusion he states that the best shaking-out liquid for alkaloids in general is chloroform, because of the solubility of most of the alkaloids in chloroform.

2. The Best Shaking-out Liquid for the Individual Alkaloids.

Alkaloids.	Results.
Atropine	Any solvent satisfactory.
Brucine	Same as for picrotoxin.
Codeine	Alcohol plus chloroform, benzene.
Colchicine	Any solvent satisfactory.
Morphine	Alcohol plus chloroform from potassium carbonate solution.
Picrotoxin	Ether, chloroform from sodium carbonate-ammonium hydroxide solution.
Strychnine	Chloroform, alcohol plus chloroform, benzene from sodium carbonate-ammoniacal solution.
Veratrine	Chloroform, ether plus chloroform, ether and benzene from ammoniacal solution.

In conclusion, he states that emulsions form easiest with benzene and least with ether.

Ed. Springer,[6] in 1902, studied the effect of the solvent chloroform on the extraction of the following alkaloids: Morphine, coniine, narcotine, strychnine, quinine, codeine, veratrine, and cocaine from solutions made acid with sulphuric, phosphoric, hydrochloric, tartaric, acetic, oxalic and citric acids.

The amount of alkaloid in the residue after evaporation of chloroform was determined by titration in the same way that Kippenberger did. For some reason, he was unable to obtain check results, and so his work is of no value from a quantitative stand-point.

The following are his results:

Aconitine.—Aconitine is removed as the salt from hydrochloric acid and as the pure salt in traces from the sulphuric acid solution.

Atropine.—From hydrochloric acid, traces were removed as the salt; from sulphuric acid, traces as the free alkaloid; traces were found from the tartaric acid solution, also.

Cocaine.—Some alkaloid is extracted from sulphuric and hydrochloric acid solutions, where the acid is present in small concentration.

Codeine.—Codeine is not found in the chloroform residues from extraction of solutions of alkaloids in phosphoric, tartaric, oxalic, citric, and sulphuric acids, although in the last case it was found that if the concentration of the acid was low enough, some of the alkaloid would be removed as the free base.

Morphine, Coniine, and Nicotine.—No alkaloid was extracted from solutions made acid with the following acids: Hydrochloric, sulphuric and phosphoric.

Narcotine.—Narcotine is removed from both hydrochloric and sulphuric acid solutions, partly as base and partly as salt.

Quinine.—No alkaloid is removed from solutions of the sulphate, tartrate or phosphate. Some quinine is removed as the hydrochloride.

Strychnine.—About 25 percent was removed from the hydrochloric acid solution as the salt. Slight traces were removed from the other acid solutions.

Veratrine.—Veratrine is removed in traces in solutions containing small amounts of tartaric, sulphuric, and citric acids, but such is not the case with large excess of sulphuric or phosphoric acids.

From this, it may be drawn that chloroform is a "good solvent" for the hydrochloric acid salts of the alkaloids. The solubility of the hydrochlorides is so great, in fact, that, if in excess of acid, the salt is taken over completely as the salt, and only in the case of the weak base narcotine could traces of the free alkaloid be found in the chloroform extract.

From the table, one would expect to find in the chloroform extract from the sulphuric acid solution in the Dragendorff assay, aconitine and narcotine, as well as the alkaloids mentioned by Dragendorff himself. Strychnine, veratrine and atropine might also be found in small amounts.

TABLE VI.

Behavior of Neutral and Acidified Alkaloidal Salt Solutions Toward Extraction with Chloroform (Simmer).

Alkaloidal salt.	Amount in 50 Gm. water.	Strength, acid per cent.	Grammes alkaloid.		
			Total.	Free.	Salt.
Strychnine hydrochloride	0.2377	0.0	0.0153	0.0142	0.0016
	0.2377	0.1	0.0083	0	0.0083
	0.2377	1.0	0.0250	0	0.0250
	0.2377	10.0	0.0559	0	0.0559
	0.2377	25.0	0.2330	0	0.2330
Strychnine hydrobromide	0.2480	0.0	0.0200	0.0133	0.0067
	0.2480	0.1	0.0167	0	0.0167
	0.2480	1.0	0.0350	0	0.0350
Strychnine hydriodide	0.2760	0.0	0.0560	0.0250	0.0317
Strychnine nitrate	0.2377	0.0	0.0283	0.0233	0.0050
	0.2377	1.0	0.0350	0	0.0350
Strychnine sulphate	0.2610	0.0	Trace		
	0.2610	1.0	Trace		
Veratrine hydrochloride	0.2110	0.0	0.0530	0.0499	0.0031
	0.2110	0.1	0.0327	0	0.0327
	0.2110	10.0	0.1248	0	0.1248
Veratrine nitrate	0.2200	0.0	0.0405	0.0405	0
	0.2200	1.0	0.0811	0	0.0811
Veratrine sulphate	0.2150	0.0	0.0374	0.0374	0
	0.2150	0.1	Traces		
Veratrine tartrate	0.2230	0.1	0.0842	0.0842	0
	0.2230	2.0	0.0155	0.0155	0
	0.2230	5.0	Traces		
Morphine hydrochloride	0.2470	0.0	0.0045	0.0045	0
	0.2470	0.1	0	0	0
	0.2470	5.0	0	0	0
Morphine sulphate	0.2500	0.0	0.0037	0.0037	0
	0.2500	0.1	0	0	0
Morphine acetate	0.2630	0.0	0.0197	0.0197	0
Codeine hydrochloride	0.2340	0.0	0.0371	0.0371	0
	0.2340	0.1	0.0015	0	0.0015
	0.2340	10.0	0.0079	0	0.0079
Codeine hydrobromide	0.2620	0.0	0.0126	0.0126	0
	0.2620	0.1	Traces		
	0.2620	10.0	0.0110	0	0.0110
	0.2620	25.0	0.0079	0	0.0079
Codeine sulphate	0.2470	0.0	0.0276	0.0276	0
	0.2470	0.1	Traces		
Codeine tartrate	0.2360	0.1	0.0110	0.0110	0
Codeine citrate	0.2480	0.0	0.0395	0.0395	0
	0.2480	0.1	0.0158	0.0158	0
Cocaine hydrochloride	0.2240	0.0	0.0490	0.0490	0
	0.2240	0.1	0.0037	0.0015	0.0022
	0.2240	1.0	0.0045	0	0.0045
	0.2240	10.0	0.0075	0	0.0075
Cocaine sulphate	0.2640	0.0	0.0143	0.0143	0
	0.2640	0.1	Traces		
Cocaine tartrate	0.2310	0.0	0.0543	0.0543	0
	0.2310	0.1	0.0528	0.0528	0
	0.2310	1.0	0.0332	0.0332	0
	0.2310	5.0	0.0015	0.0015	0
Atropine hydrochloride	0.2250	0.0	Traces of free atropine.		
	0.2250	0.1	Traces of free atropine.		
	0.2250	10.0	0.0028	0	0.0028

TABLE VII.

BEHAVIOR OF NEUTRAL AND ACIDIFIED AKLALOIDAL SALT SOLUTIONS TOWARD EXTRACTION WITH BENZENE (SIMMER).

Alkaloidal salt.	Amount in 50 Gm. of water.	Strength, acid per cent.	Grammes alkaloid.		
			Total.	Free.	Salt.
Strychnine hydrochloride	0.2377	0.0	0.0075	0.0075	0
	0.2377	0.1	0	0	0
	0.2377	1.0	0	0	0
	0.2377	10.0	Traces		
Strychnine hydrobromide	0.2480	0.0	0.0033	0.0033	0
	0.2480	0.1	Traces		
Strychnine hydriodide	0.2760	0.0	0.0033	0.0033	0
Strychnine sulphate	0.2610	0.0	0	0	0
Strychnine nitrate	0.2377	0.1	Traces		
Veratrine sulphate	0.2150	0.0	Traces		
	0.2150	0.1	Traces		
Codeine hydrochloride	0.2340	0.0	0.0055	0.0055	0
	0.2340	0.1	0	0	0
	0.2340	10.0	0	0	0
Codeine hydrobromide	0.2620	0.0	0.0023	0.0023	0
	0.2620	1.0	0	0	0
Codeine sulphate	0.2470	0.0	0.0031	0.0031	0
Codeine citrate	0.2480	0.0	0.0023	0.0023	0

In 1906, Simmer[7] published an important paper on this subject. The work was divided in three parts:

1. The behavior of the salts of the common alkaloids toward extraction by chloroform and other important solvents.
2. The appearance of decomposition through treatment with chloroform.
3. The reducing action of the alkaloids.

Simmer prepared an aqueous solution of the alkaloidal salt, containing 0.2 gramme of the free alkaloid to 50 Cc. of solution, or 0.4 percent of the free alkaloid. He then acidified with the different acids until he obtained the desired concentrations. Simmer neglected to state definitely the amount of chloroform used in the extraction, but the general tone of the paper would lead one to believe that he used equal amounts of chloroform and aqueous solution. These were mixed and the extraction carried on for an hour. At the end of that time, the layers were separated and the chloroform evaporated. The amount of free alkaloid and alkaloidal salt was determined in the residue in the usual manner.

It will be seen from the tables that many neutral salts are extracted by both chloroform and benzene; this is especially true in the cases of the salts of the nitric and halogen acids.

With strychnine hydrochloride, the least amount of salt is extracted from the neutral solution and the most from the solution that contains a 10 percent excess of acid; the 25 percent acid gives up less alkaloid than the 10 percent solution.

The behavior of the weak bases colchicine, caffeine, narcotine, papaverine, and antipyrine is different. In strong hydrochloric acid solution of colchicine, there is as much alkaloid removed by the chloroform as from the aqueous solution. The same is true with sulphuric or phosphoric acid solutions. Caffeine, thebaine and narcotine are removed from weak tartaric acid solutions as easily as from stronger acid solutions. Papaverine, narcotine, and thebaine are removed simply as salts and not as free bases.

2. THE DECOMPOSING POWER OF THE ALKALOIDS ON CHLOROFORM.

The observation had been made by many authors that extraction of the alkaloids with chloroform is attended with a decomposition of the chloroform, giving rise to free hydrochloric acid.

In order to determine this, Simmer extracted a mixture of 50 Gm. of water and 2 Gm. of finely powdered alkaloid with 50 Gm. of chloroform for eight hours. First the water was tested. This always gave an opalescence with silver nitrate, but showed itself to be free from alkaloid, except in the few cases due to the relative insolubility of the alkaloid in chloroform. The chloroform layer was then evaporated and the residue dissolved in water containing a sufficient amount of sulphuric acid. Silver nitrate solution was then added. When a definite precipitate was observed, this was filtered, dissolved in ammonia and precipitated again with nitric acid. Then the pure precipitate was filtered in a Gooch crucible and weighed.

TABLE VIII.

Alkaloid, 2 Gm.	AgCl from the chloroform layer.	Corresponding to—	
		HCl.	Alkaloid.
Atropine	0.0038	0.0009	0.0072
Brucine	0.0138	0.0033	0.0333
Quinine	Traces		
Cinchonidine	Traces		
Cinchonine	Traces		
Cocaine	0.0021	0.0005	0.0042
Codeine	Traces		
Morphine	0		
Narcotine	0		
Nicotine	Traces		
Strychnine	0.0035	0.0008	0.0073
Veratrine	0.0043	0.0010	0.0173

Thus we see that the action of the alkaloid upon the chloroform is negligible, except in the cases of brucine and veratrine.

Marden and Elliott,[8] in 1914, published a paper on the methods of extraction by immiscible solvents from the point of view of the distribution ratios. They shook out the alkaloids aconitine, atropine, codeine, coniine, morphine, quinine, and strychnine with the solvents chloroform and ether. Ammonium hydroxide was used to make the acid solution alkaline.

From the distribution coefficient and a certain subsequent algebraic calculation, they could determine the number of extractions necessary to remove 99.9 percent of the alkaloid. The distribution ratio (d) is indicated by the expression.

$$\frac{\text{Concentration in 10 Cc. of water}}{\text{Concentration in 10 Cc. of non-aqueous solvent}} = \frac{C}{C} = (d)$$

The algebraic expression for the calculation of the number of shakings necessary for an extraction is indicated by

$$\frac{x_n}{x_o} = \left(\frac{da}{e + da}\right)^n \text{ where}$$

a = volume of the aqueous solvent.
e = volume of non-aqueous solvent.
d = distribution ratio.
x_o = original amount of material to be extracted in the aqueous layer.
x_n = amount of material in the water layer after n extractions.

In the system aconitine, ether and aqueous ammoniacal solution, using 100 Cc. water, 5 Cc. ammonium hydroxide, and 50 Cc. of ether, the following result was obtained, $d = 0.140$; but on substituting 30 Cc. of chloroform for the 50 Cc. of ether, the value of d became 0.017.

Atropine.—The distribution ratio in the system water and chloroform was found to be very small and three extractions with 10 Cc. of chloroform from 50 Cc. of the aqueous solution were sufficient to remove the atropine.

Codeine.—In the system, 100 Cc. water, 5 Cc. ammonium hydroxide, and 50 Cc. ether, *d* had a value of 0.939. If 30 Cc. chloroform were substituted for the ether, the value became 0.0067.

Coniine.—Owing to the volatility of the coniine, it was very difficult to get the partition ratio.

Morphine.—In the system, saturated aqueous solution of potassium carbonate and a mixture of methyl alcohol and chloroform, *d* possessed a value of 0.154, with variations from 0.200 to 0.127. The value for the system, 100 Cc. water, containing 35 Gm. sodium chloride, and 45 Cc. of a 2:1 mixture of chloroform and ethyl alcohol was found to be 0.528.

The value for *d* between water and chloroform-amyl alcohol mixtures was 0.345.

Quinine.—Between water made alkaline with ammonium hydroxide and chloroform, quinine was found to possess such a low distribution coefficient that three washings of a 50 Cc. aqueous solution with 10 Cc. of chloroform were found to remove all of the alkaloid.

Strychnine.—The authors determined the distribution coefficients for systems containing chloroform alone and in a mixture with ether in order to see which would prove more efficient, as there has been a great difference of usage.

For the system, 100 Cc. of water, 2 Cc. of ammonium hydroxide, and 30 Cc. of chloroform, *d* was found to be equal to 0.003, but on substituting a mixture of 1:3 chloroform and ether, the value 0.087 was obtained.

SUMMARY OF THE HISTORICAL CHAPTER.—In looking over the work that has been published on the subject of the quantitative estimation of the alkaloids by the shaking-out process, sufficient data will be found to establish the equilibrium conditions of the systems, alkaloidal hydrochlorides or sulphates between their acid solutions and chloroform or ether. Results are lacking, however, which will show the partition of alkaloidal tartrates between tartaric acid and those solvents.

In addition the whole subject of the extraction of an alkaloid from its solution in chloroform by an acid has never been investigated. If equilibrium is reached, this should give the same value as with the extraction of the acid salt solution by that solvent. In practice, it takes a long time with some of these systems and there are certain other factors entering in.

III. THEORETICAL CONSIDERATION.

In an acid solution of a neutral alkaloidal salt the following equilibria are established:

(*a*) The alkaloidal salt is in equilibrium with the free alkaloid and acid, due to the hydrolysis of the salt, and

(*b*) The neutral salt and acid are in equilibrium with an acid salt. It is possible that more than one acid salt may be formed, in which case there will be as many more equilibrium reactions as there are acid salts formed. If chloroform is added to this system, and the mixture shaken, each of these equilibria may be affected. For example, the mass law equation for the hydrolysis of an alkaloidal salt is expressed by the following:

$$\frac{C_{\text{alkaloid}} \times C_{\text{acid}}}{C_{\text{salt}} \times C_{\text{water}}} = k,$$

where k is the mass law constant. The removal of one of the constituents will cause a resultant shift in the other concentrations in order that k may remain constant. The presence of a great excess of acid will drive back the hydrolysis by increasing the value for the term C_{acid} with the resultant decrease in value for the term C_{alkaloid}. At the same time, solution of the alkaloid in chloroform will cause a decrease in the value, C_{alkaloid}, with a resultant further lowering of C_{salt} in order to restore equilibrium. This salt which is removed is hydrolyzed. So the result of the removal of free alkaloid is to increase the hydrolysis. Thus, in this system at equilibrium the conditions existing are a resultant of these two equilibria which are progressing with opposite tendencies.

To approach the equilibrium from the other direction, however, introduces a new factor, namely, the speed of solution of the newly-formed salt in acid solution. As the two immiscible layers are being shaken together, forming an intimate mixture of alkaloid dissolved in chloroform and acid in the water, the alkaloid molecule in the chloroform and the acid molecule in the aqueous acid liquid meet at the junction of these fine drops of the two solutions, and combine.

In case the acid is monobasic, the first result of the reaction is probably the formation of a neutral salt. In an excess of acid, the acid salt is then formed.

With the dibasic acids, however, such as tartaric acid or sulphuric acid, the acid salt is formed first, similarly to the mechanism of the neutralization of sulphuric acid with sodium hydroxide. As more alkaloid combines, there is a gradual change from the acid salt into the neutral salt. The neutral salt in many cases seems to be very slowly soluble at ordinary temperatures, although it goes easily into solution at boiling temperature. With the excess of acid, however, the first acid salt is formed, which in some cases is only slightly soluble in a small excess of acid. As the excess of acid becomes greater, the soluble higher acid salts are formed. Thus the solution in acid may be hastened by shaking out with fresh portions of acid, in order to get the alkaloid as the higher acid salt. This situation would not be met with where the salt solution is shaken with chloroform or ether, for in these cases the salt is dissolved at a much higher temperature and the solution cooled.

IV. EXPERIMENTAL.

(*a*) Preparation of some alkaloidal tartrates and a brief description of their properties:

The neutral salts were prepared by dissolving the alkaloids in an aqueous acid solution, containing equivalent amounts of tartaric acid in a large excess of water, at the boiling temperature. In the excess of hot water, the acid salt which forms first stays in solution and the remainder of the alkaloid completely neutralizes it. On cooling the solution slowly, the neutral salt comes out in beautiful crystals. In one or two cases it was necessary to evaporate some of the solvent water in order to get the right concentration for crystallization.

The mon-acid salt may be prepared by dissolving the alkaloid in a slight excess of acid, in a small quantity of hot water. On cooling the crystals of the acid salt will come out.

These salts are further purified by crystallization from water several times.

In this way the crystalline salts of brucine, cinchonine, cinchonidine, quinine, morphine, and strychnine were prepared. The alkaloids aconitine, atropine, cocaine, codeine, and veratrine were obtained in the form of tartrates for further investigation by simply dissolving the alkaloids in the proper concentration of acid, as their tartrate salts were amorphous.

The neutral salts are characterized as follows:

(The amount of alkaloid present represents the percent alkaloid in the anhydrous salt.)

Strychnine:

M. P. 226°–227°, browning at 215°.
Crystalline form: beautiful white rosettes.
Analysis: 81.68 percent strychnine.
15.00 percent water.
Theoretical for $(C_{21}H_{22}N_2O_2)_2.C_4H_6O_6.8H_2O$:
81.66 percent strychnine.
15.20 percent water.

Brucine:

M. P. 236°–237°, with decomposition; browns at 210°.
Crystalline form: white cubes.
Analysis: 83.2 percent brucine.
9.1 percent water.
Theoretical for $(C_{23}H_{26}N_2O_4)_2.C_4H_6O_6.5H_2O$:
83.7 percent brucine.
8.8 percent water.

Quinine:

M. P. 199°, with browning.
Crystalline form: fine white needles.
Analysis: 81.28 percent quinine.
2.56 percent water.
Theoretical for $(C_{20}H_{24}N_2O_2)_2.C_4H_6O_6.H_2O$:
81.20 percent quinine.
2.3 percent water.

Cinchonidine:

M. P. 230°–231° with decomposition; browns at 218°.
Crystalline form: long white needles.
Analysis: 79.68 percent cinchonidine.
4.60 percent water.
Theoretical for $(C_{19}H_{22}N_2O)_2.C_4H_6O_62H_2O$:
79.69 percent cinchonidine.
4.64 percent water.

Cinchonine:

M. P. 190°, without either decomposition or browning.
Crystalline form: short white needles.
Analysis: 79.76 percent cinchonine.
2.8 percent water.
Theoretical for $(C_{19}H_{22}N_2O)_2.C_4H_6O_6.H_2O$:
79.69 percent cinchonine.
2.4 percent water.

The water of crystallization was determined by weighing the sample, heating at 110° to constant weight, and then dissolving the anhydrous salt in water. The solution was made alkaline and extracted twice with an excess of chloroform. The chloroform was evaporated and the residue heated to constant weight. The value obtained was that of the weight of the alkaloid in the sample of salt taken. From the value of alkaloid and that of water of crystallization was calculated the formula of the salt. The one exception in this procedure was in the case of brucine where the residue from the chloroform extraction of the alkaline brucine solution was dissolved in standard acid and the excess acid titrated back with standard alkali.

The acid salts were analyzed in the same manner.

(*b*) Determination of the equilibrium conditions for the partition of the alkaloids and alkaloidal salts between aqueous neutral and acid solutions and an immiscible solvent (chloroform or ether):

1. Extraction of the neutral or acid aqueous alkaloidal solution with chloroform and ether:

0.2 Gm. of the neutral alkaloidal salt was dissolved in 25 Cc. of the aqueous acid solution of a definite concentration. To this were added 20 Cc. of chloroform or ether and the mixture was shaken in a Jena Erlenmeyer flask for two hours and a half, at a temperature of 25°. The shaking was carried out in a water thermostat, accurate to within a tenth of a degree. The time of shaking was chosen after experiments were carried out to determine the time required for the reaction to come to equilibrium. It was found that in the case of strychnine tartrate only half this time was required. When that time had elapsed, the flasks were removed, the layers at once separated, and the chloroform or ether layer put in a small separatory funnel. After standing for about 10 minutes in order to make a clear separation, 10 Cc. of the chloroform solution were measured into a porcelain casserole, and the chloroform evaporated on a steam-bath. The residue was taken up in 10 Cc. of $\frac{N}{50}$ sulphuric acid, and the excess acid titrated back with standard $\frac{N}{50}$ potassium hydroxide. Such indicators were used as would give the most accurate results for the individual alkaloids. The selection of indicator was made after reference to Kippenberger's article. The value obtained in this way gave the amount of free alkaloid present in the residue. The neutral solution was made alkaline and extracted with chloroform. After separation, the solvent was evaporated and the residue again taken up in standard acid and titrated back with standard alkali. This gave the value for the total alkaloid. By subtracting the first value from the second, the amount of alkaloid present, combined with acid in the form of salt, was obtained.

With morphine, a slightly different procedure was carried out. In determining the amount of total alkaloid, the neutral solution after the first titration was made alkaline with ammonium hydroxide, since sodium and potassium hydroxide form salts with morphine which are soluble in alkaline solution. The alkaline solution was then extracted with amyl alcohol, until it showed the absence of alkaloid, amyl alcohol being the best solvent for morphine which will answer the purpose.

The solutions of the neutral salts were of the following acid strengths: Neutral, $\frac{N}{8}, \frac{N}{4}, \frac{N}{2}$. The equilibrium conditions were determined for the tartrate salts of the alkaloids aconitine, atropine, cinchonidine, cinchonine, cocaine, codeine, quinine, morphine, strychnine and veratrine, in tartaric acid solutions. The equilibrium conditions for the solutions of alkaloidal sulphates in sulphuric acid and hydrochlorides in hydrochloric acid were worked out with the idea of supplementing and adding to those values obtained by Kippenberger and Simmer. Table IX gives the results of the extraction of the salt solution by chloroform, and Table X, the values obtained by the extraction with ether.

2. Conditions at equilibrium in systems in which the alkaloid is being removed from its chloroform solution by an acid.

TABLE IX.

Alkaloid.	Acid.	Strength.	Grammes alkaloid in 20 Cc. chloroform.			Indicator.
			Total.	Free.	Salt.	
Strychnine	HTr	N/2	0	0	0	Azolitmin
	HTr	N/4	0	0	0	Azolitmin
	HTr	N/8	0	0	0	Azolitmin
	HTr	Neut.	0.0120	0.0104	0.0016	Azolitmin
	Sulph.	N/2	0	0	0	Azolitmin
	Sulph.	N/4	0	0	0	Azolitmin
	Sulph.	N/8	0	0	0	Azolitmin
	Sulph.	N/50	0	0	0	Azolitmin
	Sulph.	Neut.	0.0127	0.0127	0	Azolitmin
	HCl	N/2	0.0522	0	0.0522	Azolitmin
	HCl	N/4	0.0424	0	0.0424	Azolitmin
	HCl	N/8	0.0394	0	0.0394	Azolitmin
		Neut.	0.0085	0.0081	0.0005	Azolitmin
Brucine	HTr	N/2	0	0	0	Azolitmin
	HTr	N/4	0	0	0	Azolitmin
	HTr	N/8	0.0026	0.0026	0	Azolitmin
	HTr	Neut.	0.0076	0.0076	0	Azolitmin
	Sulph.	N/2	0	0	0	Azolitmin
	Sulph.	N/4	0	0	0	Azolitmin
	Sulph.	N/8	0	0	0	Azolitmin
	Sulph.	Neut.	0.0143	0.0143	0	Azolitmin
Cinchonidine	HTr	N/2	0.0012	0.0012	0	Azolitmin
	HTr	N/4	0.0024	0.0024	0	Azolitmin
	HTr	N/8	0.0018	0.0018	0	Azolitmin
	HTr	Neut.	0.0024	0.0024	0	Azolitmin
	Sulph.	N/2	0	0	0	Azolitmin
	Sulph.	N/4	0	0	0	Azolitmin
	Sulph.	N/8	0	0	0	Azolitmin
	Sulph.	Neut.	0.0086	0.0086	0	Azolitmin
Cinchonine	HTr	N/2	0	0	0	Azolitmin
	HTr	N/4	0	0	0	Azolitmin
	HTr	N/8	0	0	0	Azolitmin
	HTr	Neut.	0.0016	0	0.0016	Azolitmin
Caffeine	Sulph.	N/2	0.1928	0.1928	0	weight of residue
	Sulph.	N/4	0.1930	0.1930	0	weight of residue
	Sulph.	N/8	0.1300	0.1300	0	weight of residue
	Sulph.	Neut.	0.1032	0.1032	0	weight of residue
Cocaine	HCl	N/2	0	0	0	Iodeosin
	HCl	N/4	0	0	0	Iodeosin
	HCl	N/8	0.0432	0.0432	0	Iodeosin
	HCl	Neut.	0.0432	0	0.0432	Iodeosin
Codeine	HTr	N/2	0	0	0	Azolitmin
	HTr	N/4	0	0	0	Azolitmin
	HTr	N/8	0.0018	0.0018	0	Azolitmin
	HTr	Neut.	0.0046	0.0046	0	Azolitmin
Quinine	HTr	N/2	0.0014	0	0.0014	Azolitmin
	HTr	N/4	0.0028	0.0014	0.0014	Azolitmin
	HTr	N/8	0.0018	0.0014	0.0014	Azolitmin
	Neutral salt but slightly soluble in water.					
	Sulph.	N/2	0	0	0	Azolitmin
	Sulph.	N/4	0	0	0	Azolitmin
	Sulph.	N/8	0	0	0	Azolitmin
	Sulph.	Neut.	0	0	0	Azolitmin
Aconitine	HTr	N/2	0	0	0	Cochineal
	HTr	N/4	0.0537	0	0.0537	Cochineal
	HTr	N/8	0.0099	0	0.0099	Cochineal
	HTr	Neut.	0.0236	0.0136	0.0099	Cochineal
Atropine	HTr	N/2	0	0	0	Cochineal
	HTr	N/4	0.0036	0.0036	0	Cochineal
	HTr	N/8	0.0038	0.0010	0.0028	Cochineal
	HTr	Neut.	0.0018	0.0018	0	Cochineal
Morphine	HTr	N/2	0	0	0	Cochineal
	HTr	N/4	0	0	0	Cochineal
	HTr	N/8	0	0	0	Cochineal
	HTr	Neut.	0	0	0	Cochineal
Veratrine	HTr	N/2	0.0049	0.0049	0	Cochineal
	HTr	N/4	0.0116	0.0116	0	Cochineal
	HTr	N/8	0.0112	0.0112	0	Cochineal
	HTr	Neut.	0.0294	0.0294	0	Cochineal

TABLE X[1].

Alkaloid.	Acid.	Strength.	Grammes alkaloid in 20 Cc. ether.			Indicator.
			Total.	Free.	Salt.	
Strychnine............	HTr	N/2	0	0	0	Azolitmin
	HTr	N/4	0	0	0	Azolitmin
	HTr	N/8	0	0	0	Azolitmin
	HTr	Neut.	0	0	0	Azolitmin
	Sulph.	N/2	0	0	0	Azolitmin
	Sulph.	N/4	0	0	0	Azolitmin
	Sulph.	N/8	0	0	0	Azolitmin
	Sulph.	Neut.	0.0027	0.8027	0.8027	Azolitmin
Brucine................	HTr	N/2	0	0	0	Azolitmin
	HTr	N/4	0	0	0	Azolitmin
	HTr	N/8	0.0040	?	?	Azolitmin
	HTr	Neut.	0.0032	0.0032	0	Azolitmin
	Sulph.	N/2	0	0	0	Azolitmin
	Sulph.	N/4	0	0	0	Azolitmin
	Sulph.	N/8	0	0	0	Azolitmin
	Sulph.	Neut.	0	0	0	Azolitmin
Cinchonidine...........	HTr	N/2	0.0018	?	?	Azolitmin
	HTr	N/4	0.0018	?	?	Azolitmin
	HTr	N/8	0	0	0	Azolitmin
	HTr	Neut.	0.0024	0.0012	0.0012	Azolitmin
	Sulph.	N/2	0	0	0	Azolitmin
	Sulph.	N/4	0	0	0	Azolitmin
	Sulph.	N/8	0	0	0	Azolitmin
	Sulph.	Neut.	0.0040	0.0040	0	Azolitmin
Cinchonine............	HTr	N/2	0	0	0	Azolitmin
	HTr	N/4	0	0	0	Azolitmin
	HTr	N/8	0.0014	?	?	Azolitmin
	HTr	Neut.	0.0023	0.0023	0	Azolitmin
Codeine................	HTr	N/2	0	0	0	Azolitmin
	HTr	N/4	0	0	0	Azolitmin
	HTr	N/8	0	0	0	Azolitmin
	HTr	Neut.	0	0	0	Azolitmin
	Sulph.	N/2	0	0	0	Azolitmin
	Sulph.	N/4	0	0	0	Azolitmin
	Sulph.	N/8	0.0023	0	0.0023	Azolitmin
	Sulph.	Neut.	0	0	0	Azolitmin
Aconitine..............	HTr	N/2	0	0	0	Cochineal
	HTr	N/4	0	0	0	Cochineal
	HTr	N/8	0.0052	?	?	Cochineal
	HTr	Neut.	0.0060	0	0.0060	Cochineal
Atropine...............	HTr	N/2	0	0	0	Cochineal
	HTr	N/4	0.0011	?	?	Cochineal
	HTr	N/8	0.0014	?	?	Cochineal
	HTr	Neut.	0.0021	0	0.0021	Cochineal
Morphine..............	HTr	N/2	0	0	0	Cochineal
	HTr	N/4	0	0	0	Cochineal
	HTr	N/8	0	0	0	Cochineal
	HTr	Neut.	0	0	0	Cochineal
	Sulph.	N/2	0	0	0	Cochineal
	Sulph.	N/4	0	0	0	Cochineal
	Sulph.	N/8	0.0011	0.0011	0	Cochineal
	Sulph.	Neut.	0.0019	0.0019	0	Cochineal
Quinine................	HTr	N/2	0	0	0	Azolitmin
	HTr	N/4	0	0	0	Azolitmin
	HTr	N/8	0.0014	?	?	Azolitmin
	Sulph.	N/2	0	0	0	Azolitmin
	Sulph.	N/4	0	0	0	Azolitmin
	Sulph.	N/8	0	0	0	Azolitmin
	Sulph.	Neut.	0	0	0	Azolitmin
Veratrine..............	HTr	N/2	0	0	0	Cochineal
	HTr	N/4	0	0	0	Cochineal
	HTr	N/8	0	0	0	Cochineal
	HTr	Neut.	0.0024	0.0024	0	Cochineal

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[1] Owing to the solubility of tartaric acid in ether, it is impossible to say whether the salt is present in the ether in the free state or as salt, in the extraction from acid solution.

0.2 Gm. of the alkaloid were dissolved in 20 Cc. of chloroform and 25 Cc. of the required concentration acid added. The mixture was shaken for two hours and a half, in the same manner as was the previous case, at 25°. After separation of the two layers, the amount of alkaloid and alkaloidal salt in the chloroform layer was determined. The results are tabulated in Table XI. Owing to the insolubility of some of the alkaloids in ether, values were not always obtained for the use of this solvent. The chloroform solutions of the alkaloids were shaken out with sulphuric, hydrochloric and tartaric acids of the concentrations, $\frac{N}{2}$, $\frac{N}{4}$, $\frac{N}{8}$. In the case of strychnine, even more dilute acid solutions were used. In those cases where the salt formed is but slowly soluble in the acids, experiments were made to determine how many shakings would more quickly dissolve the salt, and what strength acid would be best.

TABLE XI.

Alkaloid.	Nature, volume, acid.	Cc.	Strength.	Grammes alkaloid in 20 Cc. chloroform.			Indicator.
				Total.	Free.	Salt.	
Aconitine................	HTr	25	N/2	0	0	0	Cochineal
	HTr	50	N/4	0	0	0	Cochineal
	HTr	50	N/8	0	0	0	Cochineal
	HCl	25	N/2	0.0342	0	0.0342	Cochineal
	HCl	25	N/4	0.0257	0	0.0257	Cochineal
	HCl	25	N/8	0.0146	0	0.0146	Cochineal
Atropine.................	HTr	25	N/4	0.0146	0.0010	0	Cochineal
	HTr	25	N/8	0.0010	0.0010	0	Cochineal
Brucine..................	HTr	25	N/2	0	0	0	Azolitmin
	HTr	25	N/4	0	0	0	Azolitmin
	HTr	25	N/8	0.0014	0.0014	0	Azolitmin
	HTr	35	N/8	0	0	0	Azolitmin
	Sulph.	25	N/2	0	0	0	Azolitmin
	Sulph.	25	N/4	0.0008	0.0008	0	Azolitmin
	Sulph.	25	N/8	0.0012	0.0012	0	Azolitmin
	HCl	25	N/2	0.0768	0	0.0768	Azolitmin
	HCl	25	N/4	0.0583	0	0.0583	Azolitmin
	HCl	25	N/8	0.0445	0	0.0445	Azolitmin
Cinchonidine............	HTr	25	N/2	0	0	0	Azolitmin
	HTr	50	N/4	0	0	0	Azolitmin
	HTr	50	N/8	0	0	0	Azolitmin
	Sulph.	25	N/2	0	0	0	Azolitmin
	Sulph.	25	N/4	0	0	0	Azolitmin
	Sulph.	25	N/8	0.0012	0.0012	0	Azolitmin
	HCl	25	N/2	0	0	0	Azolitmin
	HCl	25	N/4	0	0	0	Azolitmin
	HCl	25	N/8	0	0	0	Azolitmin
Cinchonine..............	HTr	25	N/2	0	0	0	Azolitmin
	HTr	25	N/4	0	0	0	Azolitmin
	HTr	25	N/8	0	0	0	Azolitmin
	Sulph.	25	N/2	0	0	0	Azolitmin
	Sulph.	25	N/4	0	0	0	Azolitmin
	Sulph.	25	N/8	0.0011	0.0011	0	Azolitmin
	HCl	25	N/2	0	0	0	Azolitmin
	HCl	25	N/4	0	0	0	Azolitmin
	HCl	25	N/8	0	0	0	Azolitmin
Cocaine..................	HTr	25	N/2	0	0	0	Cochineal
	HTr	25	N/4	0	0	0	Cochineal
	HTr	25	N/8	0.0017	0.0017	0	Cochineal
	Sulph.	25	N/2	0	0	0	Cochineal
	Sulph.	25	N/4	0	0	0	Cochineal
	Sulph.	25	N/8	0	0	0	Cochineal
	HCl	25	N/2	0	0	0	Cochineal
	HCl	25	N/4	0	0	0	Cochineal
	HCl	25	N/8	0	0	0	Cochineal

TABLE XI.—*Continued.*

Alkaloid.	Nature, volume, acid.		Strength.	Grammes alkaloid in 20 Cc. chloroform.			Indicator.
		Cc.		Total.	Free.	Salt.	
Codeine	HTr	25	N/2	0	0	0	Azolitmin
	HTr	25	N/4	0	0	0	Azolitmin
	HTr	25	N/8	0	0	0	Azolitmin
	Sulph.	25	N/2	0	0	0	Azolitmin
	Sulph.	25	N/4	0	0	0	Azolitmin
	Sulph.	25	N/8	0	0	0	Azolitmin
	HCl	25	N/2	0	0	0	Azolitmin
	HCl	25	N/4	0	0	0	Azolitmin
	HCl	25	N/8	0	0	0	Azolitmin
Quinine	HTr	25	N/2	0	0	0	Azolitmin
	HTr	25	N/4	0	0	0	Azolitmin
	HTr	25	N/8	0	0	0	Azolitmin
	Sulph.	25	N/2	0	0	0	Azolitmin
	Sulph.	25	N/4	0	0	0	Azolitmin
	Sulph.	25	N/8	0	0	0	Azolitmin
	HCl	25	N/2	0	0	0	Azolitmin
	HCl	25	N/4	0	0	0	Azolitmin
	HCl	25	N/8	0	0	0	Azolitmin
Strychnine	HTr	50	4N	0	0	0	Azolitmin
	HTr	100	2N	0	0	0	Azolitmin
	HTr	100	N	0.0011	0	0.0011	Azolitmin
	HTr	100	N/2	0.0011	0	0.0011	Azolitmin
	HTr	95	N/4	0.0011	0	0.0011	Azolitmin
	HTr	75	N/8	0.0011	0	0.0011	Azolitmin
	HTr	75	N/12	0.0029	0	0.0029	Azolitmin
	HTr	25	N/25	0.0125	0	0.0125	Azolitmin
	HCl	25	N/2	0.0202	0	0.0202	Azolitmin
	HCl	25	N/4	0.0250	0	0.0250	Azolitmin
	HCl	25	N/8	0.0202	0	0.0202	Azolitmin
Veratrine	HTr	25	N/2	0.0020	0.0020	0.0020	Cochineal
	HTr	25	N/4	0.0040	0.0040	0	Cochineal
	HTr	25	N/8	0	0	0	Cochineal
	Sulph.	25	N/2	0	0	0	Cochineal
	Sulph.	25	N/4	0	0	0	Cochineal
	Sulph.	25	N/8	0	0	0	Cochineal
	HCl	25	N/2	0.0740	0	0.0740	Cochineal
	HCl	25	N/4	0.0516	0	0.0516	Cochineal
	HCl	25	N/8	0.0426	0	0.0426	Cochineal

(*c*) Calculation of the *extraction factors* under the various equilibrium conditions examined, as well as those reported in the literature:

The *extraction factor* is simply the ratio of the amount of alkaloid found in the layer of the added solvent to the amount originally present in the first solution, regardless of the volumes of the two solutions. This gives an excellent idea of the efficiency of the different sets of extraction conditions.

Table XII contains the data and values for the extraction factors for the alkaloidal tartrates between tartaric acid and chloroform. In Table XIII will be found similar values where ether has been used as the solvent. The extraction factors for the sulphates between sulphuric acid and chloroform and of the hydrochlorides between hydrochloric acid and chloroform are found in Tables XIV and XV, respectively. Table XVI contains the values, using ether for the solvent, for the sulphates.

The extraction factors for the extraction of the alkaloids from their chloroform solutions, by tartaric, sulphuric and hydrochloric acids, will be found in Table XVII.

TABLE XII.

Alkaloid.	Acid.	Strength.	Chloroform.		Acid volume.	Original total alkaloid.	Factor.
			Volume.	Alkaloid.			
Strychnine	HTr	N/2	20	0	25	0.1650	0
	HTr	N/4	20	0	25	0.1650	0
	HTr	N/8	20	0.0104	25	0.1650	0.0634
	HTr	Neut.	20	0.0126	25	0.1650	0.0768
Brucine	HTr	N/2	20	0	25	0.1680	0
	HTr	N/4	20	0	25	0.1680	0
	HTr	N/8	20	0.0026	25	0.1680	0.0154
	HTr	Neut.	20	0.0076	25	0.1680	0.0453
Cinchonidine	HTr	N/2	20	0.0012	25	0.1595	0.0076
	HTr	N/4	20	0.0024	25	0.1595	0.0153
	HTr	N/8	20	0.0018	25	0.1595	0.0114
	HTr	Neut.	20	0.0024	25	0.1595	0.0153
Cinchonine	HTr	N/2	20	0	25	0.1595	0
	HTr	N/4	20	0	25	0.1595	0
	HTr	N/8	20	0	25	0.1595	0
	HTr	Neut.	20	0.0016	25	0.1595	0.0100
Quinine	HTr	N/2	20	0.0014	25	0.1625	0.0086
	HTr	N/4	20	0.0028	25	0.1625	0.0172
	HTr	N/8	20	0.0028	25	0.1625	0.0172
Aconitine	HTr	N/2	20	0	25	0.1930	0
	HTr	N/4	20	0.0053	25	0.1930	0.0274
	HTr	N/8	20	0.0099	25	0.1930	0.0512
	HTr	Neut.	20	0.0360	25	0.1930	0.1240
Atropine	HTr	N/2	20	0	25	0.1585	0
	HTr	N/4	20	0.0036	25	0.1585	0.0217
	HTr	N/8	20	0.0039	25	0.1585	0.0245
	HTr	Neut.	20	0.0018	25	0.1585	0.0108
Codeine	HTr	N/2	20	0	25	0.1600	0
	HTr	N/4	20	0	25	0.1600	0
	HTr	N/8	20	0.0018	25	0.1600	0.0116
	HTr	Neut.	20	0.0046	25	0.1600	0.0286
Morphine	HTr	N/2	20	0	25	0.1585	0
	HTr	N/4	20	0	25	0.1585	0
	HTr	N/8	20	0	25	0.1585	0
	HTr	Neut.	20	0	25	0.1585	0
Veratrine	HTr	N/2	20	0.0049	25	0.1775	0.0276
	HTr	N/4	20	0.0116	25	0.1775	0.0645
	HTr	N/8	20	0.0112	25	0.1775	0.0630
	HTr	Neut.	20	0.0294	25	0.1775	0.1655

TABLE XIII.

Alkaloid.	Acid.	Strength.	Chloroform.		Acid volume.	Original total alkaloid.	Factor.
			Volume.	Alkaloid.			
Strychnine	HTr	N/2	20	0	25	0.1640	0
	HTr	N/4	20	0	25	0.1640	0
	HTr	N/8	20	0	25	0.1640	0
	HTr	Neut.	20	0	25	0.1640	0
Brucine	HTr	N/2	20	0	25	0.1680	0
	HTr	N/4	20	0	25	0.1680	0
	HTr	N/8	20	0.0040	25	0.1680	0.0238
	HTr	Neut.	20	0.0032	25	0.1680	0.0191
Morphine	HTr	N/2	20	0	25	0.1585	0
	HTr	N/4	20	0	25	0.1585	0
	HTr	N/8	20	0	25	0.1585	0
	HTr	Neut.	20	0	25	0.1585	0
Cinchonidine	HTr	N/2	20	0.0018	25	0.1595	0.0114
	HTr	N/4	20	0.0018	25	0.1595	0.0114
	HTr	N/8	20	0	25	0.1595	0
	HTr	Neut.	20	0.0024	25	0.1595	0.0153
Cinchonine	HTr	N/4	20	0	25	0.1595	0
	HTr	N/8	20	0	25	0.1595	0
	HTr	N/8	20	0.0014	25	0.1595	0.0087
	HTr	Neut.	20	0.0023	25	0.1595	0.0144

TABLE XIII.—*Continued.*

Alkaloid	Acid.	Strength.	Chloroform.		Acid volume.	Original total alkaloid.	Factor.
			Volume.	Alkaloid.			
Quinine	HTr	N/2	20	0	25	0.1625	0
	HTr	N/4	20	0	25	0.1625	0
	HTr	N/8	20	0.0014	25	0.1625	0.0086
Codeine	HTr	N/2	20	0	25	0.1600	0
	HTr	N/4	20	0	25	0.1600	0
	HTr	N/8	20	0	25	0.1600	0
	HTr	Neut.	20	0	25	0.1600	0
Aconitine	HTr	N/2	20	0	25	0.1930	0
	HTr	N/4	20	0	25	0.1930	0
	HTr	N/8	20	0.0052	25	0.1930	0.0269
	HTr	Neut.	20	0.0060	25	0.1930	0.0310
Atropine	HTr	N/2	20	0	25	0.1585	0
	HTr	N/4	20	0.0011	25	0.1585	0.0069
	HTr	N/8	20	0.0014	25	0.1585	0.0088
	HTr	Neut.	20	0.0021	25	0.1585	0.0132
Veratrine	HTr	N/2	20	0	25	0.1775	0
	HTr	N/4	20	0	25	0.1775	0
	HTr	N/8	20	0	25	0.1775	0
	HTr	Neut.	20	0.0024	25	0.1775	0.0135

TABLE XIV.

Alkaloid.	Strength.	Chloroform volume.	Alkaloid.	Acid volume.	Total alkaloid.	Extraction factor.	References.
Strychnine	N/2	20	0	25	0.1745	0	Authors
	N/4	20	0	25	0.1745	0	Authors
	N/8	20	0	25	0.1745	0	Authors
	N/50	20	0	25	0.1745	0	Authors
	Neut.	20	0.0127	25	0.1745	0.0727	Authors
	.17N	50	Traces	70	0.2000	0	Kippenberger
	1 percent.	50?	Traces	50	0.2610	0	Simmer
	Neut.	50?	Traces	50	0.2610	0	Simmer
Brucine	N/2	20	0	25	0.1780	0	Authors
	N/4	20	0	25	0.1780	0	Authors
	N/8	20	0	25	0.1780	0	Authors
	Neut.	20	0.0143	25	0.1780	0.0803	Authors
	.17N	50	0.0020	70	0.2000	0.0100	Kippenberger
Cinchonidine	N/2	20	0	25	0.1715	0	Authors
	N/4	20	0	25	0.1715	0	Authors
	N/8	20	0	25	0.1715	0	Authors
	Neut.	20	0.0086	25	0.1715	0.0503	Authors
Quinine	N/2	20	0	25	0.1740	0	Authors
	N/4	20	0	25	0.1740	0	Authors
	N/8	20	0	25	0.1740	0	Authors
	Neut.	20	0	25	0.1740	0	Authors
	.034N	50	0	70	0.2000	0	Kippenberger
Atropine	.034N	50	0	70	0.2000	0	Kippenberger
	Neut.	50	0.0010	70	0.2000	0.0050	Kippenberger
Morphine	.034N	50	0	70	0.2000	0	Kippenberger
Aconitine	.255N	50	Traces	70	0.2000	0	Kippenberger
	.085N	50	0.0064	70	0.2000	0.0320	Kippenberger
	.017N	50	0.0130	70	0.2000	0.0650	Kippenberger
Veratrine	.017N	50	Traces	70	0.2000	0	Kippenberger
	N/40	50?	Traces	50	0.2150	0	Simmer
	Neut.	50?	0.0374	50	0.2150	0.1780	Simmer
Codeine	.034N	50	0	70	0.2000	0	Kippenberger
	N/49	50?	Traces	50	0.2470	0	Simmer
	Neut.	50?	0.0276	50	0.2470	0.1116	Simmer
Cocaine	.255N	50	0	70	0.2000	0	Kippenberger
	.017N	50	Traces	70	0.2000	0	Kippenberger
	Neut.	50?	0.0143	50	0.2640	0.0540	Simmer

TABLE XV.

Acid—Hydrochloric Acid:

Alkaloid.	Strength.	Chloroform volume.	Alkaloid.	Acid volume.	Total alkaloid.	Extraction factor.	References.
Strychnine........	N/2	20	0.0522	25	0.080	0.2895	Authors
	N/4	20	0.0424	25	0.080	0.2360	Authors
	N/8	20	0.0394	25	0.080	0.2182	Authors
	Neut.	20	0.0085	25	0.080	0.0472	Authors
	6.75N	50	0.0920	70	0.200	0.4600	Kippenberger
	6.85N	50?	0.0233	50	0.2377	0.1020	Simmer
	2.74N	50?	0.0559	50	0.2377	0.2360	Simmer
	.274N	50?	0.0250	50	0.2377	0.1050	Simmer
	.027N	50?	0.0083	50	0.2377	0.0340	Simmer
	Neut.	50?	0.0158	50	0.2377	0.0665	Simmer
Brucine..........	.075N	50	0.0898	70	0.2000	0.4490	Kippenberger
Cocaine..........	N/2	20	0	25	0.1790	0	Authors
	N/4	20	0	25	0.1790	0	Authors
	N/8	20	0.0432	25	0.1790	0.2420	Authors
	Neut.	20	0.0432	25	0.1790	0.2420	Authors
	2.74N	50?	0.0075	50	0.2240	0.0335	Simmer
	.274N	50?	0.0045	50	0.2240	0.0210	Simmer
	.027N	50?	0.0037	50	0.2240	0.0165	Simmer
	Neut.	50?	0.0490	50	0.2240	0.4900	Simmer
	.017N	150	0.0021	70	0.2000	0.0110	Kippenberger
Atropine.........	.075N	50	0.0014	70	0.2000	0.0070	Kippenberger
	2.74N	50?	0.0028	50	0.2250	0.0124	Simmer
	.027N	50?	0	50	0.2250	0	Simmer
	Neut.	50?	0	50	0.2250	0	Simmer
Morphine.........	.075N	50	0	70	0.2000	0	Kippenberger
	1.37N	50?	0	50	0.2470	0	Simmer
	.027N	50?	0	50	0.2470	0	Simmer
	Neut.	50?	0.0045	50	0.2470	0.0182	Simmer
Aconitine........	.030N	50	0.0971	70	0.2000	0.4850	Kippenberger
Veratrine.........	.075N	50	0.0807	70	0.2000	0.4035	Kippenberger
	2.74N	50?	0.1248	50	0.2110	0.5920	Simmer
	.027N	50?	0.0327	50	0.2110	0.1550	Simmer
	Neut.	50?	0.0530	50	0.2110	0.2520	Simmer
Codeine..........	.030N	50	Traces	70	0.2000	0	Kippenberger
	2.74N	50?	0.0079	50	0.2340	0.0338	Simmer
	.027N	50?	0.0015	50	0.2340	0.0064	Simmer
	Neut.	50?	0.0371	50	0.2340	0.0158	Simmer

TABLE XVI.

Acid—Sulphuric Acid:

Alkaloid.	Acid, strength.	Ether.		Acid volume.	Original total alkaloid.	Extraction factor.
		Volume.	Alkaloid.			
Strychnine......................	N/2	20	0	25	0.1745	0
	N/4	20	0	25	0.1745	0
	N/8	20	0	25	0.1745	0
	Neut.	20	0.0027	25	0.1745	0.0055
Brucine.........................	N/2	20	0	25	0.1780	0
	N/4	20	0	25	0.1780	0
	N/8	20	0	25	0.1780	0
	Neut.	20	0	25	0.1780	0
Morphine.......................	N/2	20	0	25	0.1730	0
	N/2	20	0	25	0.1730	0
	N/8	20	0.0011	25	0.1730	0.0063
	Neut.	20	0.0019	25	0.1730	0.0010
Cinchonidine...................	N/2	20	0	25	0.1715	0
	N/4	20	0	25	0.1715	0
	N/8	20	0	25	0.1715	0
	Neut.	20	0.0040	25	0.1715	0.0237
Quinine.........................	N/2	20	0	25	0.1740	0
	N/4	20	0	25	0.1740	0
	N/8	20	0	25	0.1740	0
	Neut.	20	0	25	0.1740	0
Codeine.........................	N/2	20	0	25	0.1720	0
	N/4	20	0	25	0.1720	0
	N/8	20	0.0024	25	0.1720	0.0139
	Neut.	20	0	25	0.1720	0

TABLE XVII.

Alkaloid.	Acid.	Chloroform.		Original alkaloid.	Acid volume.	Weight in acid alkaloid.	Extraction factor.
		Strength.	Volume.				
Aconitine.	HTr	N/2	20	0.200	25	0.200	1.00
	HTr	N/4	20	0.200	50	0.200	1.00
	HTr	N/8	20	0.200	50	0.200	1.00
	HCl	N/2	20	0.200	25	0.165	0.830
	HCl	N/4	20	0.200	25	0.174	0.872
	HCl	N/8	20	0.200	25	0.186	0.930
Atropine.	HTr	N/4	20	0.150	25	0.149	0.994
	HTr	N/8	20	0.200	25	0.199	0.996
Brucine.	HTr	N/2	20	0.200	25	0.200	1.00
	HTr	N/4	20	0.200	25	0.200	1.00
	HTr	N/8	20	0.200	25	0.192	0.964
	HTr	N/8	20	0.200	25	0.200	1.00
	Sulph.	N/2	20	0.200	25	0.200	1.00
	Sulph.	N/4	20	0.200	25	0.199	0.996
	Sulph.	N/8	20	0.200	25	0.198	0.994
	HCl	N/2	20	0.200	25	0.1232	0.617
	HCl	N/4	20	0.200	25	0.1417	0.7088
	HCl	N/8	20	0.200	25	0.1555	0.777
Cinchonidine.	HTr	N/2	20	0.200	25	0.200	1.00
	HTr	N/4	20	0.200	50	0.200	1.00
	HTr	N/8	20	0.200	50	0.200	1.00
	Sulph.	N/2	20	0.200	25	0.200	1.00
	Sulph.	N/4	20	0.200	25	0.200	1.00
	Sulph.	N/8	20	0.200	25	0.1988	0.996
	HCl	N/2	20	0.200	25	0.200	1.00
	HCl	N/4	20	0.200	25	0.200	1.00
	HCl	N/8	20	0.200	25	0.200	1.00
Cinchonine.	HTr	N/2	20	0.200	25	0.200	1.00
	HTr	N/4	20	0.200	25	0.200	1.00
	HTr	N/8	20	0.200	25	0.200	1.00
	Sulph.	N/2	20	0.200	25	0.200	1.00
	Sulph.	N/4	20	0.200	25	0.200	1.00
	Sulph.	N/8	20	0.200	25	0.1998	0.998
	HCl	N/2	20	0.200	25	0.200	1.00
	HCl	N/4	20	0.200	25	0.200	1.00
	HCl	N/8	20	0.200	25	0.200	1.00
Cocaine.	HTr	N/2	20	0.200	25	0.200	1.00
	HTr	N/4	20	0.200	25	0.200	1.00
	HTr	N/8	20	0.200	25	0.198	0.990
	Sulph.	N/2	20	0.200	25	0.200	1.00
	Sulph.	N/4	20	0.200	25	0.200	1.00
	Sulph.	N/8	20	0.200	25	0.200	1.00
	HCl	N/2	20	0.200	25	0.200	1.00
	HCl	N/4	20	0.200	25	0.200	1.00
	HCl	N/8	20	0.200	25	0.200	1.00
Codeine.	HTr	N/2	20	0.200	25	0.200	1.00
	HTr	N/4	20	0.200	25	0.200	1.00
	HTr	N/8	20	0.200	25	0.200	1.00
	Sulph.	N/2	20	0.200	25	0.200	1.00
	Sulph.	N/4	20	0.200	25	0.200	1.00
	Sulph.	N/8	20	0.200	25	0.200	1.00
	HCl	N/2	20	0.200	25	0.200	1.00
	HCl	N/4	20	0.200	25	0.200	1.00
	HCl	N/8	20	0.200	25	0.200	1.00
Quinine.	HTr	N/2	20	0.200	25	0.200	1.00
	HTr	N/4	20	0.200	25	0.200	1.00
	HTr	N/8	20	0.200	25	0.200	1.00
	Sulph.	N/2	20	0.200	25	0.200	1.00
	Sulph.	N/4	20	0.200	25	0.200	1.00
	Sulph.	N/8	20	0.200	25	0.200	1.00
	HCl	N/2	20	0.200	25	0.200	1.00
	HCl	N/4	20	0.200	25	0.200	1.00
	HCl	N/8	20	0.200	25	0.200	1.00

TABLE XVII—*Continued*

Alkaloid.	Acid.	Chloroform.		Original alkaloid.	Acid volume.	Weight in acid alkaloid.	Extraction factor
		Strength.	Volume				
Strychnine	HTr	4N	20	0.200	50	0.200	1.00
	HTr	2N	20	0.200	100	0.200	1.00
	HTr	N	20	0.200	100	0.198	0.996
	HTr	N/2	20	0.200	100	0.198	0.996
	HTr	N/4	20	0.200	95	0.198	0.996
	HTr	N/8	20	0.200	75	0.198	0.996
	HTr	N/12	20	0.200	75	0.197	0.986
	HTr	N/25	20	0.200	25	0.187	0.938
	HCl	N/2	20	0.200	25	0.179	0.900
	HCl	N/4	20	0.200	25	0.175	0.875
	HCl	N/8	20	0.200	25	0.179	0.899
Veratrine	HTr	N/2	20	0.200	25	0.198	0.990
	HTr	N/4	20	0.200	25	0.196	0.990
	HTr	N/8	20	0.200	25	0.200	1.00
	Sulph.	N/2	20	0.200	25	0.200	1.00
	Sulph.	N/4	20	0.200	25	0.200	1.00
	Sulph.	N/8	20	0.200	25	0.200	1.00
	HCl	N/2	20	0.200	25	0.126	0.630
	HCl	N/4	20	0.200	25	0.148	0.742
	HCl	N/8	20	0.200	25	0.157	0.787

V. DISCUSSION OF RESULTS.

In looking over the tables, the following results will be observed:

Aconitine.—In the washing of a solution of aconitine tartrate with chloroform, it is seen that the more concentrated the acid is, the less alkaloid will be removed. Hydrolysis takes place in the neutral solution with the removal of about 11 percent of the alkaloid in the free state. Whatever alkaloid is removed from the acid solution is removed in the form of salt and not in the free state. Aconitine is also removed from solution in sulphuric acid, provided the acid is less than $\frac{N}{4}$ concentration, but in much smaller amounts than from tartaric acid. From hydrochloric acid solution the amount of alkaloid removed is in direct proportion to the strength of the acid and the alkaloid is almost entirely removed as the salt, showing that chloroform is a fairly good solvent for the hydrochlorides of aconitine.

Atropine.—The same phenomena will be observed in the cases of the sulphates and tartrates of atropine, namely, that as acidity increases, less alkaloid will be removed by ether or chloroform. With the hydrochlorides it is reversed, and as the strength of the acid increases, the amount of alkaloid removed increases, and it is removed as the salt.

Brucine.—Brucine is not removed from tartaric acid solutions of strength greater than $\frac{N}{4}$ by either chloroform or ether, although with a decrease in the concentration of the acid from that point down, there is increased hydrolytic action with the removal of the alkaloid in the uncombined state. Sulphuric acid retains the alkaloid from removal by either chloroform or ether from acid solution, and ether does not even extract any from the neutral solution. From a $\frac{N}{0.075}$ solution of the hydrochloride in hydrochloric acid, 45 percent of the alkaloid is removed by chloroform and most of it as the salt.

Cinchonidine and Cinchonine.—Cinchonidine, cinchonine, and quinine differ from the other alkaloids in that their hydrochlorides are insoluble in chloroform. Many of the hydrochlorides of the other alkaloids are soluble to a great extent in this solvent. The neutral tartrates and sulphates are hydrolyzed and the alkaloids removed by both ether and chloroform. Cinchonidine differs from cinchonine in that the tartrates are hydrolyzed in acid solution and some of the alkaloid removed as free cinchonidine.

Quinine.—Quinine sulphate is neither hydrolyzed in neutral and acid solution nor is the salt soluble in either ether or chloroform. The neutral tartrate is only slightly soluble in water but the $\frac{N}{8}$ acid solution is hydrolyzed to a slight extent, giving up quinine in both the free and combined condition to chloroform and in the free state to ether.

Morphine.—Neither chloroform nor ether remove morphine from the neutral or acid solution of the tartrate. The neutral sulphate is slightly hydrolyzed and some free morphine found in the ether.

Strychnine.—Hydrolytic action takes place in the $\frac{N}{8}$ tartaric acid and neutral solution of the strychnine tartrate and some alkaloid is removed by the chloroform in the free state. Increase in acidity with both the sulphates and tartrates causes a decrease in the amount of alkaloid removed, the reverse being true in the case of the hydrochlorides.

Veratrine.—Veratrine is removed in appreciable amounts from the tartaric acid solution by chloroform, but only from the neutral solution by ether. Chloroform does not take up any of the alkaloid from the sulphuric acid, but appreciably lowers the concentration of the alkaloid in the hydrochloric acid solutions.

Codeine.—Neither ether nor chloroform will remove codeine from solution in $\frac{N}{2}$ or $\frac{N}{4}$ tartaric acid, but chloroform removes increasing amounts as the concentration of the acid decreases from that point on. The hydrochlorides are more soluble in chloroform the greater the concentration of the acid. Hydrolysis takes place in the neutral solutions and much codeine is removed.

In general, the following principles may be apparent in the foregoing:

1. The neutral sulphates and tartrates in aqueous solution are hydrolyzed to a certain extent with the subsequent formation of free alkaloid and acid. This alkaloid may be removed by the immiscible solvent.

2. With an increase in the acidity of the solution the hydrolytic action becomes less and the amount of alkaloid taken up in the free state decreases with the increase in acidity.

3. Many of the acid sulphates and tartrates are removed as salts to a slight degree by chloroform and ether.

4. The alkaloidal hydrochlorides tend to be quite soluble in chloroform, and in such cases the solubility increases with the acidity of the solution, in all the cases studied.

By means of this data, the following questions may be answered:

1. What conditions of acidity would completely remove the alkaloid from its chloroform solution?

2. Which solvent, chloroform or ether, can best be used for shaking out the neutral or acid solution of the alkaloidal tartrates or sulphates, without removing the alkaloid?

3. And which salts are least easily removed by chloroform or ether, and in what concentration of acid, either by hydrolysis or through the solubility of the salt itself in the immiscible solvent?

1. The best conditions of acidity for completely removing the alkaloids from the chloroform solution. Table XVIII gives the values for the extraction of 0.2 Gm. of the alkaloid from 20 Cc. of the solvent chloroform, by the different acids:

TABLE XVIII.

Alkaloid.	Acid.	Strength.	Volume.
Aconitine	HTr	N/8	2 portions of 25 Cc. each
Atropine	HTr	N/8	1 portion of 25 and 1 of 10 Cc.
Brucine	HTr	N/8	1 portion of 25 and 1 of 10 Cc.
Cinchonidine	HCl	N/8	25 Cc.
and			
Cinchonine	Sulph.	N/8	1 portion of 25 and 1 of 10 Cc.
Cocaine	Sulph.	N/8	25 Cc.
and			
Codeine	HCl	N/8	25 Cc.
Quinine	HCl	N/8	25 Cc.
	HTr	N/8	25 Cc.
	Sulph.	N/8	25 Cc.
Strychnine	HTr	N/8	3 portions of 25 Cc. each
Veratrine	HTr	N/8	25 Cc.
	Sulph.	N/8	25 Cc.

2. The best solvent for shaking out the neutral and acid solutions of the alkaloidal tartrates, without the loss of alkaloid:

TABLE XIX.

Alkaloid.	Solvent.	Strength HTr.	Percent alkaloid removed.
Aconitine	Ether	N/4	0
Atropine	Chloroform	Slightly acid	1.0
Brucine	Chloroform	N/8	1.5
Cinchonidine	Ether	Slightly acid	1.2
Cinchonine	Chloroform	N/8	0
Codeine	Ether	N/8	0
Quinine	Ether	N/8	0.8
Morphine	Either one	Slightly acid	0
Strychnine	Ether	Slightly acid	0
Veratrine	Ether	Slightly N/8	0

3. The salts that are least easily removed by chloroform or ether and the best concentration of acid:

TABLE XX.

	Chloroform.			Ether.		
Alkaloid.	Salts.	Strength acid.	Percent removed.	Salts.	Strength acid.	Percent removed.
Aconitine	Sulphate	N/4	0	Tartrate	N/4	0
	Tartrate	N/4	0			
Atropine	HCl	0.02N	0	Sulphate	N/10	0
Brucine	Sulphate	N/8	0	Sulphate	N/10	0
Cinchonine	Tartrate	N/8	0	Tartrate	N/8	0.8
Cinchonidine	Sulphate	N/8	0	Tartrate	N/8	0
Codeine	Sulphate	N/50	0	Sulphate	N/10	0
Quinine	Sulphate	N/50	0	Sulphate	N/10	0
Morphine	Sulphate	N/50	0	Tartrate	N/8	0
Strychnine	Sulphate	N/50	0	Tartrate	N/8	0
Veratrine	Sulphate	N/50	0	Tartrate	N/8	0

In addition, calculations may be made which will tell how many shakings from chloroform solution need be made by an acid to completely remove the alkaloid from the chloroform solution. If 94 percent of the alkaloid is removed in the first shaking with 25 Cc. of acid, the second extraction will remove 94 percent of the 6 percent left, or 5.86 percent. Thus these two extractions will remove 99.86 percent of the alkaloid. A third extraction will take away 94 percent of the remaining 0.14 percent, or 0.131 percent, so the three extractions with the acid will make practically a complete removal.

Table XXI shows the number of shakings necessary to remove 0.2 Gm. of alkaloid from 20 Cc. of a chloroform solution.

TABLE XXI.

Alkaloid.	Acid.	Strength.	Percent alkaloid removed in first shaking.	Number of shakings for complete removal.	Total acid volume.
Aconitine	HTr	N/2	100	1	25
	HTr	N/4	100	1	25
	HTr	N/8	100	1	25
	HCl	N/2	83.0	4	100
	HCl	N/4	87.2	3	75
	HCl	N/8	93.0	3	75
Atropine	HTr	N/4	99.4	2	35
	HTr	N/8	99.6	2	25
Brucine	HTr	N/2	100	1	25
	HTr	N/4	100	1	25
	HTr	N/8	96.4	2	35
	Sulph	N/2	100	1	25
	Sulph.	N/4	99.6	2	35
	Sulph.	N/8	99.4	2	35
	HCl	N/2	61.7	6	150
	HCl	N/4	70.8	5	125
	HCl	N/8	77.7	4	100
Cinchonidine	HTr	N/2	100	1	25
	HTr	N/4	100	1	25
	HTr	N/8	100	1	25
	HCl	N/2	100	1	25
	HCl	N/4	100	1	25
	HCl	N/8	100	1	25
	Sulph.	N/2	100	1	25
	Sulph.	N/4	100	1	25
	Sulph.	N/8	99.5	1	35
Cinchonine	HTr	N/2	100	1	25
	HTr	N/4	100	1	25
	HTr	N/8	100	1	25
	HCl	N/2	100	1	25
	HCl	N/4	100	1	25
	HCl	N/8	100	1	25
	Sulph.	N/2	100	1	25
	Sulph.	N/4	100	1	25
	Sulph.	N/8	99.8	2	35
Cocaine	HTr	N/2	100	1	25
	HTr	N/4	100	1	25
	HTr	N/8	99.0	2	35
	Sulph.	N/2	100	1	25
	Sulph.	N/4	100	1	25
	Sulph.	N/8	100	1	25
	HCl	N/2	100	1	25
	HCl	N/4	100	1	25
	HCl	N/8	100	1	25
Codeine	HTr	N/2	100	1	25
	HTr	N/4	100	1	25
	HTr	N/8	100	1	25
	Sulph.	N/2	100	1	25
	Sulph.	N/4	100	1	25
	Sulph.	N/8	100	1	25
	HCl	N/2	100	1	25
	HCl	N/4	100	1	25
	HCl	N/8	100	1	25
Quinine	HTr	N/2	100	1	25
	HTr	N/4	100	1	25
	HTr	N/8	100	1	25
	Sulph.	N/2	100	1	25
	Sulph.	N/4	100	1	25
	Sulph.	N/8	100	1	25
	HCl	N/2	100	1	25
	HCl	N/4	100	1	25
	HCl	N/8	100	1	25

TABLE XXI.—*Continued.*

Alkaloid.	Acid.	Strength.	Percent alkaloid removed in first shaking.	Number of shakings for complete removal	Total acid volume.
Strychnine..........	HTr	N	100	After 2 shakings of 25 Cc. each	
	HTr	N/2	100	After 4 shakings of 25 Cc. each	
	HTr	N	99.6	After 4 shakings of 25 Cc. each	
	HTr	N/2	99.6	After 4 shakings of 25 Cc. each	
	HTr	N/4	99.6	After 4 shakings(3×25+10Cc.)	
	HTr	N/8	99.6	After 3 shakings of 25 Cc. each	
	HTr	N/12	99.6	After 3 shakings of 25 Cc. each	
	HTr	N/25	93.8	After 1 shaking of 25 Cc.	
	For complete removal from N/25 acid, 2 shakings.				
	HCl	N/2	90.0	3	75
	HCl	N/4	87.5	3	75
	HCl	N/8	89.9	3	75
Veratrine............	HTr	N/2	99.0	2	35
	HTr	N/4	98.0	2	35
	HTr	N/8	100.0	1	25
	HCl	N/2	63.0	6	150
	HCl	N/4	74.2	5	125
	HCl	N/8	78.7	4	100
	Sulph.	N/2	100	1	25
	Sulph.	N/4	100	1	25
	Sulph.	N/8	100	1	25

VI. SUMMARY.

1. The most practical method for the determination of alkaloids involves the extraction of the alkaloid from an aqueous solution by means of an immiscible solvent, such as chloroform or ether.

2. It further involves the purification of the alkaloidal solution by removal of gums, colors, etc., by similar methods.

3. Unless conditions are carefully guarded, loss of alkaloid as salt or in the free state will occur during the extraction.

4. The equilibrium conditions for the following systems have been established, in the case of the alkaloids aconitine, atropine, brucine, cinchonidine, cinchonine, cocaine, codeine, morphine, quinine, strychnine, and veratrine:

(*a*) The alkaloidal tartrates, tartaric acid, water and chloroform.

(*b*) The alkaloidal tartrates, tartaric acid, water and ether.

(*c*) Certain alkaloidal sulphates, sulphuric acid, water, and chloroform.

(*d*) Certain alkaloidal sulphates, sulphuric acid, water, and ether.

(*e*) Certain alkaloidal hydrochlorides, hydrochloric acid, water, and chloroform.

(*f*) The extraction factors have been determined for all these systems, as well as those described in the literature, and the most favorable conditions for extraction calculated.

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BIBLIOGRAPHY.

[1] Dragendorff: Die gerichtlich-chemische Ermittelung von Giften, 4 Aufl., p. 151.
[2] Stas-Otto: Ausmittelung der Gifte., 7 Aufl., pp. 144 and 280.
[3] Kippenberger, C.: Grundlagen für den Nachweis von Giftstoffen bei gerichtlich-chemischen Untersuchungen, p. 56.
[4] Kippenberger, C.: Zts. f. Anal. Ch., 1900, 39, 290–314.
[5] Proelss, Hans: Apoth. Ztg., 1900, 16, 289–493.
[6] Springer, Ed.: Apoth. Ztg., 1901, 17, 225–226.
[7] Simmer: Arch. d. Phar., 1906, 244, 672.
[8] Marden and Elliott: J. Ind. Eng. Ch., 6, 928.
[9] Kippenberger, C.: Zts. f. Anal. Ch., 1900, 39, 201–230.

THE UNIFICATION OF CLINICAL LABORATORY METHODS.

BY FREDERIC E. NIECE, PH.D.

The extremely diverse findings so frequently revealed in various clinical laboratory reports have become so conflicting of late that criticism has been called forth and the need for a reform at the earliest possible date advocated. This would be desirable, at least in-so-far as methods and technics are concerned, so that some sort of agreement in the results could be obtained through a standardized set of tests for this line of work.

Speaking from experience, it seems almost impossible to secure reports on the same specimen from two or more independent laboratories that will agree on the essentials. This is particularly true in cases where confirmation or checking of results are desired. There appears to be no end to discrepancies, because of the fact that there is no attempt made to co-ordinate technics, nor a desire to establish a recognized set of methods by which to conduct the work.

Physicians, who, as a rule, depend upon the absolute truth of the results of analyses of this kind, have found so much fallacy in the work of a few "commercialized laboratories," that their suspicion has been aroused against practically all privately owned concerns. This condition of affairs has become aggravated within the last few years, because a few "contract laboratories" have abused their contract privileges by turning out unreliable work. Contracts, such as have been in vogue in recent years, constitute the greatest menace that confronts legitimate laboratory work. Physicians fell easy prey to the idea, because it looked like an innovation and a convenience, hence they readily accepted the proposition. But they have been constantly deceived, because they, or no one else, have had any satisfactory means with which to check this kind of work. For the present, any laboratory has a right to qualify their methods as being the best, because there are no other means of standardization than personal say-so. But so glaring have become the methods pursued by a few enterprises of this sort, that the Kings County Medical Society in conjunction with the New York County Medical Society, of New York city, have given wide publicity to a certain institution, which not only bids for contract laboratory work, but issues rebates, as well. Unfortunately, the law gives these medical societies no power to investigate such institutions, but by virtue of their code of ethics they can do much good by warning their members against such evils, and to that end, a movement is under way.

That private laboratories are a necessity cannot be denied, but they should endeavor to perform a well defined function, and be the equal, if not the superior, in their work of the public health laboratories. A public health laboratory is no guarantee against mistakes because it is dominated by civil service employees, but it does strive to obtain a condition of uniformity, which permits of its work being checked. This does not obtain with all privately conducted laboratories, owing to the lack of a desire to secure uniformity. It is for this reason, that sooner or later, the health department will see the need of controlling or regulating this line of work through legislation, or by a set of recognized methods of analyses. This is a project that should be encouraged. As to the purely commercialized clinical laboratory, we are aware that it is commonly accepted that "much shame has been committed in its name"; therefore, regulation of them may very soon be attempted.

While legal regulations may be necessary, they will act only as an expedient, and will not bring about the desired improvement unless there are means at disposal for checking such work. This is essential for arriving at truth and reliability, for the continued success of laboratories depends on whether they do honest work or not, and the reliability of their methods. Such regulation would in a large measure curb contract activity, for unregulated contracts foster inaccuracy. Concerns of this kind, working only for the dollar, cannot afford to give the time sufficient to insure accuracy; frequently they do not see the need of it; chiefly because it is too expensive. Slipshod methods of inexperienced technicians will not be corrected by costly chemicals. Let us work to the end that clinical laboratory work will be accepted with the same degree of confidence in which an iron or a coal analysis is now received.

Some physicians have come to the conclusion that all laboratories "are tinted with the same pigment." If the laboratory methods for clinical purposes were harmonized, such views would be dispersed, and would serve as an incentive to the honest worker, and afford a means of assurance to those who are served by the laboratories. Under such conditions, no such a test as the "sink test" would survive the "acid test." The estimation of glucose in urine, from its specific gravity, would suddenly become obsolete. Such methods as detecting elements by the odor or color would not obtain very long under such conditions of checking. Discrepancies will continue, unless some means is adopted which will guarantee the use of reliable methods.

In support of the contention here advanced, reflect on the conditions prior to the inclusion of well established methods of identification in the Pharmacopœia. Within recent years, order has arisen out of chaos, so that to-day we can expect agreement in many things, and it matters not whether the drugs are examined in San Francisco or New York, As examples of unification of laboratory methods, the official methods of the Bureau of Chemistry of the Department of Agriculture may be cited; also the standard methods of water analysis and standard sewage analysis of the American Public Health Association; the Hygienic Laboratory methods for the determination of phenol-coefficients. By reason of these methods, there is some hope of checking the results, regardless of location of the laboratory, provided experienced workers made the examinations. There is no reason why this same condition should not exist with clinical laboratory work, when so much depends on the truth of the findings.

During the last fourteen years, I have experienced some amusing, yet sorrowful, instances, which vividly bespeak the need of some such reform as here advocated. During my connection with the laboratory of the Equitable Life Assurance Society of New York City a few interesting and hitherto unknown tests were encountered. I recall a few that were never known before, and have since been forgotten. One came from a western medical examiner who was constantly reporting glucose in urine. Tests made in the home laboratory proved the contrary in 98 percent of the cases. On asking for information as to his technic, he promptly replied that he used "Dr.——(?) test, which was a test in which blue litmus was used." He qualified his test by stating "If the color changed on boiling the mixture of urine and litmus, it was due to sugar, but if the color remained the same after boiling, there was no sugar present." Evidently he had confused his litmus test (?) with either that of Bremer's (methylene blue) or Fehling's test, impressed by the color, without looking up details. Another came from a Kansas examiner who used Fehling's solution for testing both for albumin and glucose in urine. His description of the test was, "that if on boiling the urine with Fehling's solution the color turns purple, it is due to albumin, but if it turns orange in color it is due to glucose," and he added, "there is no doubt about either." He was non-committal when asked how he would apply his test in the event both albumin and glucose were present in the same sample of urine.

A more recent occurrence was the following: A sample of urine (sp. gr. 1.028) was divided into two samples, to be tested for the presence of sugar; a portion was submitted to a contract laboratory, the other was carefully examined in another laboratory. By a most extended and careful technic, not as much as traces of glucose could be detected by the latter. The former reported 2.4 percent of glucose. As the variation in the two reports was so great the client made an investigation. He reported back that he was told by the contract laboratory, "they had made a test for glucose with Fehling's solution, and on finding a slight reduction, they polariscoped it and obtained the above reading" (slight reduction, mind you). When asked if they still had the specimen in their possession, they said, "No, they had thrown it away." I do not venture an explanation, for it is too deep for the average chemist to fathom (?), but it does point out the fact that such things could not occur if regulations were provided by which we could check work, or reject work, on the claim that an official or standard method was or was not used. Conceive, if you will, the great difference that may follow microscopic work when one chemist uses only a drop of the sample for an examination and the other the same size drop after centrifuging. Surely no agreement can follow such technic, and in a sense both are acceptable.

One of the most glaring defects in our so-called "clinical laboratory work" is the ease with which reports go unchallenged. The following is a report sent out by a New York physician to a patient of another doctor, who requested that he make a careful examination of the urine specimen. I do not give this with any desire to cast a reflection on the medical profession, but what I am endeavoring to do is to champion a cause which will prevent dishonesty and carelessness in making examinations. There were no means of checking this analysis, but the result of the examination will speak for itself. This was the report taken verbatim.

Dr. Mc——. Patient, Mr. B——.

Odor, urinous. Specific gravity, 1.020. Color, yellow. Reaction, acid. Sediment, large amount. Glucose, absent. Albumin, present. Bile, none. Urea, none. Chlorides, normal. Phosphates, normal.

Microscopically, few hyaline casts, numerous oxalate of calcium crystals.

Remarks: Great care must be exercised with diet, or stones may form.

[Signed] ———————— M.D.

In all my experience of testing thousands of samples of urine yearly, I have never as yet seen a urine, such as this one purports to be, with a normal gravity, that did not reveal some measurable amounts of urea. What method was used in this examination I am unable to state, but I am much at sea to understand what became of all the urea. Granting the use of the accepted "hypobromite method," better figures should have been obtained, but it appears, from the report, all the urea had vanished. In support of this very remarkable finding, I have only two explanations to offer—one is dishonesty, the other carelessness—one or both are at fault.

To be brief, too many examinations are made inferentially and not chemically. With these few examples taken at random from a large number, one must realize the very great need of some form of uniformity. Just as to how this may be put into shape, I am not at this time prepared to state, but it occurs to me, that in the United States Pharmacopœia would be the proper place to make a beginning. As an initial step in this direction, I may add by way of reference, that I advocated, in a paper read at the fifty-seventh annual meeting of the American Pharmaceutical Association, held at Los Angeles, California, August, 1909, the inclusion in the National Formulary of a set or a list of recognized formulas that would be of special use in such distinct studies as bacteriology, hematology, pathology, gastrology and urinology. Something on the order of the Swiss Pharmacopœia, which contains a chapter of five pages on "Reagents for Medical Chemistry." The formulary of the Dresden Apotheker Verein gives solutions for the estimation of albumin, glucose, etc. The Russian Pharmacopœia gives a long list of formulas for use in medical chemistry. For a number of years, the United States Pharmacopœia has recognized Fehling's solution as a standard for the estimation of glucose and allied carbohydrates. Within the last year or so, the idea suggested above has been slowly assuming form. The U.S.P. IX contains a chapter in Part II on Diagnostical Reagents and Clinical Tests, giving formulas, etc., of reagents for examination of urine, gastric contents, and blood; also stains and accessories for bacterial study. In addition to this, the A. Ph. A. Recipe Book will contain other tests that have been and will be submitted by various correspondents. The question is, how can the good work begun be promoted?

Now that the United States Pharmacopœia has taken the first step, much has already been accomplished. It must be conceded, that to agree upon a set of standard methods will be no easy undertaking, and fraught with much discussion. It is reasonable to expect this, as each contributor will advance some particular method or test as being the best, by reason of his personal experience with it. Then again the test will be made somewhat difficult at the outset, because methods are constantly changing, undergoing revision, modification, improvement, or deletion. This should not impede the progress of the idea, since we would find many tests that could be selected for the purpose intended, by virtue of their long usage. These would form a working basis upon which to extend the subject, which would eventually lead to a set of standard methods that would certainly insure more uniform and reliable results in the examination of clinical specimens for diagnostic purposes.

The Claremont Laboratories, New York City.

STUDENTS WHO MEAN BUSINESS.

Not long ago we were told that the enrollment for the summer classes at the University exceeded all expectations, and now comes the news that more than 8000 students have registered for the summer school of Columbia University, in New York. These figures are more than impressive. They stand for just that many young men and women who are terribly in earnest, which is only another way of saying that most of them intend to succeed in the world if it is possible to do so. It is no longer remarkable to go through school or college. In these days of compulsory education few escape the earlier grades, and those who are able to raise the price manage to get at least a smattering of what we call the higher education. Many of those who go to college come out not much better equipped for life.

But who can doubt the advantages that will be gained by the tens of thousands who are entering the summer classes of the various colleges throughout the United States. The fact that they are willing to undergo the sweltering discomforts of this season of the year is a proof that they have the stamina of which successful men are made. The competition of life grows more strenuous as the years go by, and it is obvious that the greatest prizes will go to these who are best equipped for the battle.

The day of opportunity has not passed in this country and none realize it more clearly than the ambitious, persistent young people who are willing to make any sacrifices in order to obtain the best education possible.—*Phila. Inquirer.*

HANDLING BIOLOGICAL PRODUCTS IN THE DRUG STORE.*

BY ROBERT P. FISCHELIS.

Biological products are playing such an important role in the materia medica of the present day that the pharmacist should be alive to the possibilities afforded him of making his establishment known to physicians as one at which these products may be obtained in first-class condition at any time, together with general information as to their administration and use.

As pointed out by Mr. W. L. Cliffe, in a paper presented to the Philadelphia Branch of the American Pharmaceutical Association in 1912, the pharmacist logically and naturally is the recognized distributor of bacteriological products, because the time that would elapse in procuring them direct from the maker every time they are needed by the physician would bring about serious inconvenience. Most pharmacists handle bacteriological products nowadays, although a great many confine themselves to keeping a few packages of vaccine virus and diphtheria antitoxin on hand, because they have not yet learned the possibilities of financial remuneration connected with making their establishments headquarters for all kinds of bacteriological products.

In order to take up biological products as a side line, the pharmacist should know something of their nature, manufacture, keeping qualities and administration and be able to assist the physician in the selection of the proper serum or bacterin that may be required. Further, he should select the products of a reliable house so that he may have the confidence necessary to enable him to recommend these products to physicians. The pharmacist must also bear in mind that no matter how excellent a product may be when he receives it from the manufacturer, his (the pharmacist's) reputation depends on the condition in which the product leaves the drug store. The question of proper storage, therefore, is a very vital one.

It is a well-known fact that bacteriological products depend for their activity upon highly complex and delicate protein compounds and must in consequence be subject to deterioration. Such changes may be chemical, resulting from the gradual degeneration of the active chemical constituents, as in the case of antitoxins. On the other hand, the active constituent may be a living microörganism and deterioration of the product containing it may be due to an effort at continued growth, with resultant exhaustion of the food supply, or to the accumulation of metabolic products—naturally, one of these processes is somewhat dependent upon the other, and together they weaken and destroy the life of the active constituent more or less rapidly in a length of time depending upon the conditions under which the product is kept. A typical example of this class is smallpox vaccine virus. The studies of prominent bacteriologists reveal that cold is the most important factor known at present for the preservation of biological materia medica.

Elgin studied the rate of deterioration of vaccine virus when exposed to various temperatures: He found that at 37°C. (98°F.) the vaccine is dead within three or four days; at 21°C. (70°F.) it will live for from one to three weeks; at 10°C. (50°F.) it is still active after three to six months; while at 12°C. (10°F.) it will retain its activity for more than four years, perhaps indefinitely. This work has been confirmed by others. It is thus plainly seen that even at ordinary refrigerator temperature, vaccine virus retains its activity for only a few months, and, owing to variability in the virus obtained at different seasons, etc., the dating on the finished tubes or points is usually only from six weeks to two months from the date of preparation.

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* Read at the meeting of the Pennsylvania Pharmaceutical Association, June 20, 1916.

As said above, the substance in antitoxic or antibacterial serums which gives them their specific value is subject to deterioration, and it has been found that upon keeping serums for a considerable time they lose strength. Light and heat are the most potent agencies in bringing about this change. It is customary to protect all biological products from light by putting them up in dark glass containers. Actual experience and actual scientific experiment have demonstrated the value of cold for the preservation of the specific activity of serums, and it has been found by scientists who have studied the rate of deterioration of various serums that some antitoxins deteriorate a great deal under the ordinary conditions of the market, while others suffer very little change. They all, however, point out the fact that loss in potency does not result in the formation of any harmful substance.

On account of this deterioration, it is customary for manufacturers of antitoxins to place in their packages an excess of units of strength, sufficient to make up for the average maximum loss in potency during a time, the limit of which is noted on the package.

The rate of deterioration under the conditions of the market as estimated by Kinyoun and Hitchens is such that an excess of 24 percent in units should be added, if the serum is to remain on the market for twelve months.

Anderson thinks that 33⅓ percent for two years is sufficient, and American manufacturers follow this rule pretty closely. In other words, a package of diphtheria antitoxin said by the manufacturer to contain ten thousand units at the time it is placed on the market will actually contain sufficient excess to allow for 33⅓ percent deterioration during two years' exposure to the average conditions of the market.

If the pharmacist is keeping his biological products under the best conditions, the deterioration will be much less than 33⅓ percent, and even though the patient receives it at the end of two years, he will get much more than ten thousand units, and since the therapeutic result depends directly upon the number of units administered, the result will be proportionately better.

It may be assumed that tetanus antitoxin and the antibacterial serums deteriorate, if not in the same ratio, at least similarly with regard to cold. Therefore, the value of refrigeration as an indispensable aid in serum therapy is clearly demonstrated.

From what is already known of the rate of deterioration of antitoxins when kept at a low temperature, we may deduce that cold affects bacterial vaccines (bacterins) much as it does serums, that is, it has a preservative influence. No extensive experiments to determine the degree of deterioration in bacterial vaccines have yet been completed. Information regarding the danger of deterioration of bacteriological products has been freely circulated, and pharmacists should be well acquainted with the facts in the case. Yet there are some who disregard not only the facts placed before them in current pharmaceutical literature, but the directions explicitly given in the United States Pharmacopœia.

The Ninth Revision of the Pharmacopœia will recognize, besides diphtheria antitoxin, which was recognized in the Eighth Revision, tetanus antitoxin and vaccine virus. The following directions are given for the preservation of antitoxin: "It must be kept in sealed glass containers in a dark place, at a temperature between 4.5° and 15°C."

The directions for the preservation of vaccine virus are: "Preserve it at a temperature between 4.5° and 15°C.; protect it from light." In each case, the Pharmacopœia also states that the serum or vaccine must bear the "name, address and license number of the manufacturer and the date beyond which the product cannot be expected to yield its specific results."

Since the foregoing facts are known and the directions of the Pharmacopœia are so specific, it behooves pharmacists to regulate their facilities for storing biological products accordingly, and the apothecary who does not keep his stock of antitoxins, bacterins and vaccine virus in a refrigerator or cold store room is as far behind the times as the surgeon who prepares his scalpel for an operation by sharpening it upon his boot.

Since the Committee on Papers and Queries of this Association published its annual list of queries, it has been my privilege to visit the establishments of several Philadelphia pharmacists which are provided with biological refrigerators, and by their courtesy I am permitted to discuss some of the methods in vogue in taking care of biological business in the retail store, in answer to Query No. 9.

The majority of the stores visited were equipped with a Mulford Biological Refrigerator, which is specially constructed of enameled steel to meet the needs of storing these products. It consist essentially of two properly insulated chambers, the upper one being used for ice and the lower one being divided into eight separate compartments arranged in the form of drawers, thus permitting storage of each kind of bacteriological products exclusively in one or more of the compartments. A fairly good sized piece of ice will maintain a temperature below 40°F. in this refrigerator very easily, and this temperature comes well within the pharmacopœial requirements.

In several of the stores visited, no further attempts at systematizing the stock of these products in the refrigerator are made than to see that as each order comes in, the product is put away under its proper classification. At periodic intervals, someone goes over the entire stock and takes note of the expiration dates on the packages and sorts out those which have reached the time limit and prepares to exchange or return them for credit. While this method is fairly satisfactory for a store which does not do a very large business in biological products and is so situated that any desired package can be obtained at very short notice by sending to the manufacturing house, it is not satisfactory for stores which are located at some distance from the source of supply.

In the Farrow Pharmacy, Twenty-ninth Street and Columbia Avenue, Philadelphia, a scheme is followed by which the stock on hand is kept account of as well as of the dates of expiration, with very little trouble. Pieces of plain white cardboard are ruled as shown below, and placed in each compartment of the refrigerator.

Name	*A*	*B*	*C*	*D*	*E*
Acne Serobacterin	7– 8–16				
Influenza Serobacterin......	8–16–16	8–16–16	8–16–16	8–16–16	
	9– 7–16				
Neisser Serobacterin.......	9–20–16	9–20–16			
	9–20–16	9–20–16			
	10– 7–16		10– 7–16		

In the column at the extreme left, the name of the antitoxin, bacterin or whatever it may be is written with pencil. In the column immediately adjoining, *A*, the expiration date of the package is written. If two or more packages of the same product are in stock, two or more expiration dates are written in this column. The card, therefore, not only serves as a memorandum of expiration dates, but also becomes an inventory of the particular compartment to which it refers. Each time a package is removed, its date of expiration is erased from the card, so that, if properly kept, one need simply glance at the card to see how many packages of each product are on hand and how soon they must be exchanged.

The columns headed *B, C, D* and *E* are used to record expiration dates of different sizes of the product recorded on the same line in column *A*.

The most complete system of storing and keeping track of biological products that I have seen in any retail drug store in Philadelphia is that followed in Peacock's Pharmacy at Broad Street and Erie Avenue.

This store is known to physicians as headquarters for biological products, and with the many new preparations that constantly appear, the ordinary biological refrigerator is taxed for space, but Mr. and Mrs. Peacock and their assistants have mastered the problem of storing a maximum amount of biological products in a minimum of space.

Instead of laying packages of the various products in the compartments promiscuously, the ordinary packages with square ends are stood on end, in alphabetical or numerical order, with the date up, in rows separated by neat cardboard partitions. Four-syringe packages of bacterins, because of lack of room elsewhere, are placed on specially adjusted narrow shelves arranged between the wall of the refrigerator and the wall of the drawer. The space here is just wide enough to store these packages comfortably.

Larger packages, such as antitoxin, etc., are laid in the compartments in the usual manner, but all of one kind and make of preparation are kept together. The compartments are lettered *A, B, C, D,* etc., and an alphabetical card index, showing, opposite the name of each product, the letter of the drawer in which it can be found, is now being prepared so that anyone will be able to find any biological product in stock, although it is very easy to do this at present with the alphabetical arrangement referred to above.

A novel method for keeping track of expiration dates is also in use at the Peacock Pharmacy. A five-cent Wanamaker Diary is kept on the desk near the refrigerator. On or about the first of the year the name of every package in the refrigerator is written on the page of the diary which corresponds to the expiration date of the preparation, providing, of course, that this date comes within the ensuing year. Each additional package bought during the year is entered the same way, provided its expiration date comes within the year for which the diary holds good. Of course, any preparations expiring later than this particular year will be recorded in the diary for the following year, if they are not already sold by the first of January following. Once this record is made, the man in charge has no trouble in keeping fresh stock on hand. Each day or two he will consult the diary for three or four days in advance, to see which packages will then be out-dated, and then he looks into the refrigerator to see if they have been sold, crossing their names off the list if the latter is the case, and taking out those packages which remain, preparatory to exchanging them for new stock. All told, this requires less than fifteen minutes a day, on the average, and as a result, the words "We have it, but the date expired yesterday" are strangers at Peacock's Pharmacy.

Biological business, like any other side-line in the drug store, must be handled in an efficient, business-like manner if proper returns are desired.

It is a clean, ethical and necessary line and its proper handling brings prestige as well as financial returns to the retail druggist who is willing to give it a little time and attention.

Manufacturing houses supplying biological products are very liberal with explanatory literature, follow-up letters and post cards for physicians, which advertise both the products and the store at which they may be had.

If it is true that the use of biological remedies has to some extent curtailed prescription writing, that is all the more reason why the retail druggist should show his physician friends that he is just as able to intelligently fill orders for these products as he is to fill prescriptions, and that he not only has the latest information on how to keep biological products in condition for instant demand, but that he puts this information to practical use for the benefit of the physician and his patients.

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CHOLERA MIXTURE; AN IMPROVED FORMULA.*

BY OTTO RAUBENHEIMER, PHAR. D.

The sale of diarrhœa mixtures or so-called "cholera drops" has become a necessity, especially during the summer months. For this reason the National Formulary, one of our legal standards according to the Pure Food and Drugs Act and the State Laws, provides five different formulas, two of which, namely Squibb's Diarrhœa Mixture and Sun Cholera Mixture, will be retained in the 4th edition of the N. F., now in print and official from September 1, 1916.

The "Sun Mixture" is without doubt the most important, and its history is given in another paper. However, owing to its high opium content, namely 20 volume percent of tincture of opium, it cannot be sold to the public without a physician's prescription, according to the Federal as well as the State Laws.

What is the pharmacist to do under these restrictions? Various suggestions have been made, so as to sell cholera mixture to the suffering public.

1. To reduce the quantity of tincture of opium, so that one fluidounce contains *not more than 2 grains of opium or one-fourth of a grain of morphine.*

2. To replace the 20 percent of tincture of opium by such astringents as tincture of cinnamon or kino or gambir.

3. My own suggestion is to modify the formula in such a way as to contain 50 percent of paregoric. Here is my formula:

IMPROVED SUN CHOLERA MIXTURE.

Spirit of Peppermint	2 volumes
Spirit of Camphor	1 volume
Tincture of Capsicum	1 volume
Tincture of Rhubarb	1 volume
Camph. Tincture of Opium	5 volumes

Dose: 1 to 2 teaspoonfuls in a wineglass of water as required.

Why do I advocate the use of paregoric? Because from personal experience I am convinced of its beneficial use in cramps, pains and diarrhœa. Elixir Paregoricum has most certainly stood the test of time, both as a household remedy, as well as a pharmacopœial preparation, having been originated about 1700 by Dr. Le Mort, Professor Chemistry at the Univeristy of Leyden, Holland.

These "Improved Cholera Drops" contain merely a trace of opium, namely 0.2 percent, or 0.02 percent of anhydrous morphine. It seems hardly possible that the "opium habit" could be contracted from this mixture, as its taste is not any too inviting.

As another argument in favor of this preparation, I beg to state that I have sold these cholera drops for over a year with perfect satisfaction to my customers.

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* Read before annual meeting of New York Pharmaceutical Association.

HISTORY AND PREPARATION OF INTRAVENOUS SOLUTIONS.*

BY M. BECKER.

Intravenous medication, as the name indicates, is a direct, exact and efficacious method of administering medicine, and is employed quite extensively in medical practice with drugs of known and proven therapeutic value, also in an experimental way on animals.

Not only is intravenous medication the most direct, but it is also well known that many patients are unable to take certain medicines when given orally, for example, salicylates, iodides, mercury and iron salts, which cause unpleasant digestive disturbances and form chemical compounds with the contents of the stomach, thereby entirely defeating the purpose for which the medicine is given. This constitutes one of the reasons why intravenous and hypodermatic forms of medication are holding such an important place in the practice of medicine to-day.

One would be led to believe, from the knowledge of the extensive use of hypodermatics, that these antedated intravenous medication. However, this is not the case, as intravenous injections of drugs were administered several centuries before medicines were given hypodermatically.

If we consider the transfusion of blood under intravenous injections, then that procedure goes back to the remote antiquity. The Egyptians are said to have practised it. The earliest method of intravenous medication dates as far back as 1492, when it was recommended for the treatment of Pope Innocent VIII. If we confine ourselves strictly to the subject of the injection of drugs, the first experiment of that character was performed in England by Christopher Wren. Professor of Astronomy at Oxford, who first tried the bold experiment of injecting drugs into the veins of animals. In 1656 he injected opium and crocus mettalorum, using dogs as his subjects of experiment. His injection apparatus consisted of a quill attached to a small bladder, and not the hypodermic syringe, as we have to-day. The opium stupefied the dogs, but did not kill them; while the crocus caused violent vomiting.

The first injection to man was given by Wren in 1657. It appears that a certain foreign ambassador at the court of St. James became interested in Wren's experiments and offered a delinquent servant of his as a subject for experiment. In 1662 J. D. Major, an English physician, and Escholtz made several successful injections on human beings.

Altogether the experiments at this first and early period of intravenous injections were discouraging in their results, and for that reason the practice fell into disrepute, and was not revived until about the end of the eighteenth century. The reason for this was that the preparations were applied indiscriminately in all kinds of cases, and, perhaps, the preparations were not compounded properly. At the same time they paved the way to our present rational intravenous therapy based on careful pathologic, pharmacologic and chemical research, and to-day the drugs used for intravenous injection are increasing rapidly.

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* Read before the Denver Branch, A. Ph. A.

In preparing intravenous solutions there are certain critical points to be considered; for instance, precipitation, contamination, sterilization and compatibility with the blood stream. I am unable to go into detail in this matter, because in numerous cases each drug or chemical requires special preparation before being made compatible with the blood stream. However, there are others that need very little treatment and the solution is all that is required of it for intravenous use.

The ampoule is the preferred form of marketing and dispensing intravenous solutions because it is free from contamination, more exact and more permanent. In preparing the ampoules they are washed with a special apparatus made for this purpose, or by other means, such as boiling in distilled water and cooling quickly, whereupon water enters the ampoule and is rinsed out. This is repeated several times, and in some instances the ampoules are first prepared by washing in acid and rinsing them thoroughly before the preceding process is carried out. When this procedure is completed the ampoule is sterilized, which is usually done in a sterilizing oven at about 125°C., or in an autoclave.

The sterilized ampoules are then filled by one of several methods, namely, the vacuum, gravity or pressure, the vacuum being preferred when it can be used, or when a large number is to be filled. In the vacuum method the ampoules are put in a crystallizing dish bottom up, or put on a special plate and a crystallizing dish placed over them and both inverted; hence, the ampoule is bottom up and ready to be put in the desiccator made for the purpose. A little in excess of the calculated amount of the preparation to fill the ampoule is poured in the crystallizing dish. The crystallizing dish, containing the ampoules, is then put into the desiccator. The desiccator is closed and the air exhausted by the vacuum, and by gradually allowing it to re-enter, the atmospheric pressure forces the liquid into the ampoule. In the gravity method of filling ampoules the burette or special graduated tubes made for the purpose are found the most convenient; while in the pressure method the hypodermatic syringe cannot be surpassed.

The filled ampoule is then ready for sealing. In most cases it is done in large quantities by means of a blast, but they may also be sealed by means of a Bunsen flame. The hermetically sealed ampoules are then tested by touching or drawing over a blotter, or by boiling in colored water, and in case of leakage after the water has cooled the colored solution will be found inside of the ampoule. The sealed ampoule is now ready for sterilization, the heat, of course, depending upon the nature of the compound, and often requires a considerable amount of research work.

Because of the favorable view the medical profession has taken on intravenous medication, and because of the constant increasing demand from all parts of the country for all kinds of preparations, it is necessary that pharmacists should be prepared for such dispensing. The most important point to be considered is, to see that the preparation is free from contamination and precipitation, is properly sterilized, and is compatible with the blood stream. Certain drugs require special preparation before making them compatible with the blood stream, and unless the pharmacist has the time to devote to experimental work and to testing the finished product, both chemically and physiologically, it is safer not to attempt to prepare intravenous solutions. It has been our experience that seemingly harmless chemicals or drugs, as well as the more potent ones, have given severe reaction or anaphylaxis, and in some instances have proven fatal to animals.

Laboratory Intravenous Products Co., Denver.

UTILIZING SURPLUS STOCK IN THE MANUFACTURE OF HIGH PRICED CHEMICALS.*

BY IVOR GRIFFITH.

Many druggists, during these days of aëroplane prices, are offered opportunities to use their knowledge of chemical reaction for money saving purposes. Strange to say, however, not many of them, for one reason or another, seem to possess enough self-confidence to tackle these problems. In a sense this lack of confidence is justified when we consider that the pharmacist, much to the detriment of his professional ethics, has become accustomed to having most of his thinking done by someone else.

Sometimes we sigh for the good old days when the corner druggist made his own blue ointment, his own bromides and his own elixirs and made them with care and thoroughness, qualities that we often feel are not prominent enough in the make-up of the druggist of to-day. Not that the modern pharmacist lacks these good points, but simply that he does not accept opportunities to display them as he should.

A few weeks ago a country-town druggist complained, to the writer, of his "terrible misfortune" in having on hand about ten pounds of salicylic acid; formerly he had sold this preservative to the "home canning" folks who now use boric acid instead. My friend explained that if it had been sodium salicylate it would not have mattered much, because his stock of that was practically exhausted and he would very soon have to buy more. When I suggested that he manufacture the latter out of his stock of salicylic acid he laughingly retorted, that he would not care to take sodium salicylate of his own manufacture or dispense any for his good friends. While we cannot call this man a good representative of our calling, we must admit the presence (sad to relate) of many of his kind among us.

To bring matters closer home, how many here have bought at a ridiculously high price a chemical that could have been prepared from material on the shelf that had been bought at pre-war prices, simply by using a little ingenuity and care in its manufacture? To return, however, to our subject, we have endeavored in the following matter to assemble in a condensed, yet practicable, form as many processes and reactions as might be of use to those druggists who have enough self-confidence and are anxious to save money as well as gain experience by carrying out some of these processes in their own laboratories:

Sodium Salicylate.—Mix 100 grammes of salicylic acid with sufficient distilled water to form a paste, and then add 104 grammes of pure crystallized sodium carbonate or 45.18 grammes of monohydrated sodium carbonate, in a glass or porcelain dish of large capacity. When the reaction is over, heat gently to expel all of the carbon dioxide. Strain through well moistened muslin. Test the solution with litmus paper and, if alkaline, add sufficient salicylic acid to make the solution slightly acid. Evaporate carefully, avoiding contact with metal. The dried salicylate will be white, if properly made, and colored grey if carelessly made. The latter can be corrected by redissolving in distilled water, adding a slight excess of salicylic acid and again carefully evaporating to dryness. To prepare a solution of sodium salicylate from salicylic acid and sodium bicarbonate, the following proportions of the constituents are employed: To make 10 grammes of sodium salicylate use 8.175 grammes of the acid and 5 grammes of sodium bicarbonate. This latter method is convenient for the manufacture of a stock solution.

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* Read before Pennsylvania Pharmaceutical Association, June 22, 1916.

Ammonium Salicylate.—Dissolve 89.0 grammes of salicylic acid in 39.28 grammes of 28° ammonia water or 109.98 grammes of 10° ammonia water, in a glass container. Evaporate the solution to a concentrated form and test with litmus. If alkaline, add enough acid to render it distinctly acid and crystallize in a muslin-covered vessel.

Strontium Salicylate.—Dissolve 10 grammes of salicylic acid in 100 mils of boiling distilled water in a glass or porcelain container. Add 5.3 grammes of pure strontium carbonate. Filter and add enough acid to cause a slight excess. Evaporate and crystallize.

Lithium Salicylate.—To 25 mils of hot water in a glass or porcelain dish add 10.9 grammes of salicylic acid and 3.0 grammes of lithium carbonate. Heat till effervescence ceases. Filter, add enough salicylic acid to render slightly acid and evaporate to dryness.

Sodium Benzoate.—Mix 84.7 grammes of benzoic acid with 43.29 grammes of monohydrated or 99.59 grammes of crystalline sodium carbonate in 200 mils of distilled water in a porcelain evaporating dish. Heat gently and when effervescence has ceased filter, render acid by the addition of a little more salicylic acid when necessary, and evaporate to dryness. These quantities produce about 140 grammes of the salt.

Ammonium Benzoate.—Treat 87.75 grammes of benzoic acid with 43.8 grammes of 28° or 122.63 grammes of 10° ammonia water in a similar way to make 138.06 grammes of this salt.

Several weeks ago, the pharmacist at a Philadelphia hospital found some twenty odd ounces of pure bromine, that had been used in urea estimation at the pathological laboratory, in a test now replaced by Dunning's Urease Reagent. The bromine was therefore practically useless to them until bromides commenced to skyward, when the pharmacist conceived of a plan for its use in making potassium or sodium bromide after the method outlined in the sixth revision of the U.S.P., which is as follows: Take of bromine 62.2 grammes; pure iron filings, or card teeth, 31.1 grammes; crystal potassium carbonate, 66.10 grammes; distilled water, 2 liters. Add the iron and afterwards the bromine to 750 mils of distilled water, stirring the mixture frequently, with a glass rod, during half an hour. A shallow vessel containing weak ammonia water, standing beside the bromine container, will absorb the suffocating odor of the bromine. At the end of the half hour apply a gentle heat, and when the liquid assumes a greenish color add gradually the potassium carbonate, previously dissolved in 750 mils of distilled water, until it ceases to produce a precipitate. Continue the heat for a half hour and filter. Wash the precipitate with 500 mils of boiling distilled water, and again filter. Mix the filtered liquids and evaporate. Set aside for crystals to form and discard the mother liquor.

Sodium bromide can be prepared in the same manner, using, however, 57.44 grammes of pure crystallized sodium carbonate or 24.97 grammes of monohydrated sodium carbonate instead of the equivalent amount of potassium carbonate.

PHARMACY AND THE ARMY.*

BY ARTHUR H. JENKIN.

The demand for commissions in the British army by pharmacists appears on the face of it to be reasonable, and the ambition a perfectly legitimate one; it is only when we examine the matter from the army man's point of view that both the reasonableness of the demand and of the ambition become more than doubtful. It is an axiom that the dispensing of medicines should be undertaken by men with the necessary qualifications, and, paradoxical as it may seem, most of the army dispensing is so controlled, being done by the manufacturers of pills, tablets, and readily-measured compound galenicals before the army compounder (really the M.O.'s orderly) ever sees them; although in certain hospitals and depots there may be a doubtful reliance occasionally placed upon a particularly smart man of this type, where a pharmacist should be employed, generally speaking there is no room in any one regiment for a pharmacist-officer as such. It is only by making these facts clear that pharmacists can proceed if they are not to delude themselves with the idea of their importance to the Army Council. For dispensing only there is no room for them except in very special cases.

If, however, we turn to their personal as well as pharmaceutical qualifications, we can make out a case not nearly so easily to be refuted. As a man used to purchasing and taking charge of a very various stock of most diverse bulk, the pharmacist should, especially with training in sanitation, ambulance, bacteriology, X-ray work, etc., make for each regiment a most efficient quartermaster or his commissioned assistant; the medical stores, apparatus, and dispensing becoming his particular charge under the direction of the M.O.; general stores, etc., under the direction of his superior quartermaster, and himself the responsible officer (as the quartermaster at present is) for the general arrangement of camps or billets, the food and water supply and the sanitary arrangements, in addition to the supervision of the distribution of medicaments and the possible introduction of a more varied dispensing of medicines. Although readily capable of assimilating the theoretical knowledge, it has in the past been almost impossible for the pharmacist to acquire the necessary practical experience which would alone justify his demand for recognition. With the establishment of special training centers, the institution of classes for drill and technical subjects, together with the field experience to be gained with the regiment to which he is attached, the pharmacist's claim will be greatly strengthened for further training by a department of the R.A.M.C., which could, by a suitable subdivision, be made available for the purpose; both freeing medical men for more legitimate advisory and diagnostic work, and providing the Army with a service which nearly all Continental armies are glad to make use of.

There can be no doubt in the minds of thoughtful men that Britain will never go back to the ante-war Army conditions. The mere fact of the increased stamina of the young recruits of the first days of the war, as compared with that of their companions who did not join so soon, is quite sufficient to prove the necessity of the universal training of the youth of the nation on similar lines in the future, even if it is not necessary for military purposes; and in the new condition pharmacy must take its place in the forefront, instead of waiting on the offer of a back seat.

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* *Pharmaceutical Journal and Pharmacist,* July 8, 1916.

On the suggestion of eminent authorities connected with the Army Medical Service, the Pharmacists' Volunteer Training Corps, at first independently, afterwards as a unit of the Central London Regiment (soon to have its sphere of action still further widened), has worked tentatively in the various directions above indicated, and has attracted considerable attention from responsible officials connected with the War Office. As its members are precluded by their business engagements from joining the regular forces, only a few of those who have passed through its earlier courses of training are engaged in active service, but the experience gained will be a valuable asset when it comes to training the young man of the future, making a fine stepping-off place for his work as a commissioned pharmacist.

A warning note must be struck when we speak of ambulance work, sanitation, bacteriology, X-ray work, etc. It should never be suggested that a pharmacist would become merely a stretcher bearer or first-aider, although he should have full knowledge of the requirements in these directions. Nor is it essential that he should be a practical plumber, an analytical chemist or a fully-fledged meat or sanitary inspector. Yet less would it be expected of him to carry his work in bacteriology beyond the micro-biological stage, or his X-ray work beyond facility in handling the apparatus for taking photographs or administering indicated doses from the medical officers' directions. It would be no part of his business to offer any opinion on a case because he was able to recognize the bacillus of tuberculosis, or to make any statement as to a particular fracture, because he happened to have X-rayed a similar one, any more than it would be to attempt to correct the physiological conditions leading up to an attack of neuralgia or to supply medicaments to an undiagnosed case, on the strength of a patient's assertion as to his particular complaint. In short, his sphere in these services would be preparatory as the assistant of the medical man, so that from his work a diagnosis, which he could not undertake, might be made by those trained for the purpose. Diagnosis and the subsequent prescribing are, and must remain, outside his province.

Rules of professional conduct, embracing these, must be rigidly adhered to by a commissioned pharmacist if he would gain and retain the respect and good will of the Army Council and its medical advisers.

On some such lines as these it appears possible that the pharmaceutical demand for commissioned rank can be met, and would possibly be welcomed. The time is ripe for immediate action. The "wait until after the war" crank will doubtless raise his voice, but we are at present in a little backwater of time. Our active young men are at the front. They will not wish to come back to old conditions. Our preparations must be well forward, our plan of campaign elaborated, the spade work of a secure foundation for our superstructure put in, *now, by us,* if we are to prove our worth, not only to the Government, but to the nation at large.

THE WAR OF THE METRIC SYSTEM.*

BY A. L. BENEDICT, A.M., M.D., BUFFALO.

Although an advocate and user of the metric system, so far as practicable in this country, for nearly thirty years, it amused me to see the present European war thus characterized by an amateur writer for a newspaper. After seeing the same view expressed in one of our critical weekly reviews, the suggestion did not appear so ridiculous.

Offhand, the fact that practically all of the combatant nations use the metric system almost exclusively, with the sole exception of Great Britain, whose entrance into the war is historically an after event, would seem to dispose of the question. But it must be recognized, first, that the Germans have persistently regarded the war as primarily against England, and while present history taken literally shows this view to be an anachronism, it is only fair for a neutral country to await the subsequent submission of evidence before making a final decision. It may be that the German claim can be shown to be not only persistent but consistent. At any rate, getting behind the immediate cause of precipitation of conflict, which was too far fetched to be an explanation and which has practically been forgotten, there is no question that the essential cause of the state of tension in Europe was the growing power of Germany, economically rather than directly military, up to the point at which the restraint of England became an appreciable factor in limiting its further growth.

Taking this deeper view of the war, its designation as one of the metric system is quite understandable, and in no such symbolic sense as the War of the Roses, or the cruder and very recent designation of the present war as one of the sausage against the beef steak. In the literal and narrow sense, the adoption of the metric system by Germany was one of the most important minor reasons for the phenomenal industrial and commercial growth whose regrettable result has been the present war, and we need not discuss the question, at present quite academic, whether this result was necessary. In a somewhat figurative and broader sense, the designation, war of the metric system, is still more applicable. It implies prompt and universal adoption, at the cost of temporary inconvenience and contrary to habit, of something that is ultimately desirable and economic. By itself, the adoption of the metric system by Germany would not have been important—no more important, for example, than the change from Gothic print and script to Roman a few years ago, nor the omission of a few silent letters to simplify the spelling, already close to phonetic perfection compared with the almost purely arbitrary spelling of English. But as one of a considerable number of changes, adopted universally in a comparatively brief space of time historically and involving social, educational, economic, industrial, political, military, naval, and other factors in the welfare of a people, it stands out as a type of German achievement rather than as belonging to other countries, even perhaps including that in which it originated. In this sense, it typifies efficiency and far-sightedness. Grant that not every one of the changes introduced, at the expense of immediate convenience and with a view to ultimate improvement, has been successful. Grant even that this particular change has been unwise, as most of the readers of this article will, if they think as they practise, and it is still evident that the same spirit of seeking efficiency in details, broadly applied, will in the aggregate result in superior rate of advancement, unless we assume a general faculty of making unwise decisions.

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* Reprinted from *New York Medical Journal,* April 29, 1916, pp. 824–826.

The metric system typifies German efficiency, civil and military, in quite a different way—convertibility and correlation. This is true in both the literal and the figurative sense. Everything that the army requires that is ponderable, a hypodermic medicine, a loaf of bread, a bullet, a gun; anything that it secures from ordinary commercial supplies without special preparation in advance, is weighed in some decimal multiple or fraction of a gramme. Everything that is measured along a line, the soldier's height, his step, his roads, his blanket, the calibre of weapons, the distance that he travels, and everything that he encounters that is not directly designed for military use but which he may need, is similarly measured by the meter. The sole exception, and this may no longer be true, is that the importation of railroad tracks and rolling stock from England left this form of transportation with the impress of the old miscellaneous units of measurement. The obvious exception of other imports, mostly in bulk, need not be considered as a practical handicap.

Further than this, every branch of the metric system comes together, somewhere, with the others; for example, the Cc. and the gramme, the solid and the liquid bulk ton. Even the mark, the unit of money value, is practically a six gramme weight. It is the same spirit of correlation that has made the immediate adaptation of the railroads and postal service to military requirements possible, that has put the travelling soup wagon, the automobile truck, and a host of other things immediately in the category of military auxiliaries.

As an illustration of the value of the correlative spirit of the metric system, the negative method is the more striking. Ask yourself, for instance, how many pounds there are in a bushel of potatoes, or how much a bushel of water would weigh, or how many cubic inches there are in a gallon. There is an old rhyme to the effect that a pint is a pound. Probably there is some liquid that at some temperature and pressure would weigh a pound to the pint, but there is no accurate and simple relation among any of the necessarily diverse methods of mensuration by weight, length, area, and volume, except in the metric system.

Another negative illustration of the value of the metric system may be put in the terms of the logical development of land. It is first mapped out in degrees and minutes, then surveyed by the square mile, roads are run through by the rod, distances are measured by chains and links. The land is farmed by the acre. It becomes valuable for building purposes and is sold by the foot, linear frontage or square, according to local custom, depending largely on value. The building is erected by feet and inches, some of the metal work being in feet and tenths. Feet of lumber, neither linear nor cubic, come into the estimate. The house is ready for occupancy and is supplied with carpets and curtains by yards of varying width, for carpets even the grade and price deciding whether we deal with three-quarter or one-third fractions if we think in yards or improper fractions, or units if we think in feet. Contrast this with the metric system where, from degree of latitude —obviously the degree of longitude varies—in the original map down to the minutest particular of house furnishing, we are dealing with even multiples of the same unit.

I do not wish to discuss military preparedness further than to say that, so far as the medical profession is concerned, a very important item would be familiarity with the metric system, which is at least theoretically standard for the existing government services. Without such familiarity, much confusion would result in the military medical service if war came. But military preparedness includes a multitude of items that have nothing directly to do with killing. Nearly every fundamental science which applies to development in peace and equally to war has for some years worked in metric units. This is true of medicine, of physiology, and chemistry, and of a large number of special scientific branches which can scarcely be termed independent sciences, microscopy, pharmacology, bacteriology, serology, etc. A change of units in passing from the scientific to the practical has its obvious disadvantages. The same statements may be made, with some qualifications, as to the relation of the scientific and the practical in nearly every art and industry of peace. Both in its own field and as an example and incentive to other professions and trades, our profession can perform an important service by furthering the general use of the metric system. This service would be of incalculable value from the peace standpoint; it would do much to avert catastrophe if we are to have war. Let us not forget that this service would be something more than facilitating measurements by substituting the advantages of decimal computations and correlated units. It would be a training in coöperative foresight and initiative to secure efficiency.

BRITISH CHEMICAL SOCIETY.

A meeting of the above was held on Thursday, February 3, at 8 P.M., at Burlington House, Piccadilly, W., Dr. Alexander Scott, F.R.S., being in the chair, when Professor W. H. Bragg, M.A., F.R.S., delivered what was subsequently described as a unique lecture, and one of the most remarkable ever delivered in Great Britain. Professor Bragg, together with his son, was awarded the Nobel Prize of last year for the work of which the present lecture was a record. It was entitled " The Recent Work on X-rays and Crystals and Its Bearing on Chemistry," and dealt with a new conception of the atomic and molecular structure of crystalline substances and a method by which the subject might be elucidated.

Professor Bragg said that the subject was still a novel one. It had started from very small beginnings—from the discovery of Dr. Von Lowe that crystalline structure acted as a diffraction grating for X-rays, and that it was possible to throw on a screen a pattern of the structure of a crystal by this means, which gave some idea of the molecular constitution of the substance. By a happy chance, due to the work of the lecturer's son, Lowe's work was simplified, and, what is much more important, made quantitative. The principle upon which the work subsequently described is founded depends upon a simple phenomenon of light. In the ordinary soap film, for instance, if a ray of light is incident upon it at an angle, then one sees a play of rainbow colors over the surface. This is due to the fact that there is reflection of light at both upper and under surfaces of the film.

COPIES OF PRESCRIPTIONS.*

BY OTTO RAUBENHEIMER, PHAR.D.

It is an every-day occurrence in a pharmacy that a copy of a prescription is asked for. Frequently patients move away from the neighborhood or care to make a change for other reasons. When the patient calls for a copy, I find that the most satisfactory method is to give him same, without any further arguments or comments. Oftentimes the physician asks the patient to get such a copy for his own information, quite especially when a change in doctors has been made.

That the patient is rightly entitled to a copy of his prescription, that is of an ordinary *but not of a narcotic prescription,* has been decided by the courts on several occasions. Why not? After all the patient has paid the physician for his advice and the resulting prescription. He can have this prescription compounded at any pharmacy and demand that the original, his property, should be returned to him. Of late years, physicians frequently specify that this prescription is not to be repeated and also that no copy is to be given. If this is the case then the pharmacist should honor the wish of the physician. Consequently, it is "up" to the medical profession to prevent the custom, if not the abuse, of the refilling and the copying of prescriptions.

For years I, and no doubt other pharmacists, have adopted a rule to make a memorandum on prescriptions: "Copy given on such a date." I have instructed my clerks and apprentices to do this and I have always taught my students in the College to practise this simple system. The advantages of this precaution are obvious, namely, a permanent record and the prevention of giving copies indefinitely.

During the past few years I have paid particular attention to copies of prescriptions, which were received at my pharmacy as well as other drug stores. To my surprise, to my great surprise, I have learned, not from hearing but from actual observance, that some pharmacists are in the habit, in the bad habit, of *writing copies of prescriptions on blank pieces of paper, which do not bear their name or address.*

Such practice is abominable and detestable; it is a discredit, in fact, a disgrace to pharmacy. And why such an evasion, such a shirking of responsibility? Simply because the druggist, the timid, the over-timid druggist is afraid of being *underpriced by his brother* pharmacist. Truly a brotherly love indeed!

But this is not all! Copies are given in such an illegible handwriting, that they are difficult to decipher and may be the cause of misinterpretation and even mistakes which might be fatal. It is obvious that such cryptographs are given intentionally, so as to hinder another pharmacist from filling the prescription. I even know of a case in my own experience when I received a copy of a prescription without name and address in which merely the ingredients were given, *but not the quantities.* Upon telephoning the druggist, after obtaining his address from the patient, I received the great satisfaction that he blamed his clerk for this negligence or still better, this trick.

It is this shifting of responsibility, this shirking of accountability and the consequent irresponsibility which at the present day is one of the great dangers, if not the curse in pharmacy. It is high time that pharmacists wake up to this fact and better their conditions and better themselves.

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* Read at the meeting of the New York State Pharmaceutical Association, Richfield Springs, June, 1916.

Now as to the lesson in my paper. It has the following object. Let the New York State Pharmaceutical Association be the father of a bill or an amendment to the Pharmacy Law providing the following:

1. Copies of prescriptions must be true copies.
2. Must be written distinctly.
3. Must bear the name and address of the pharmacy or the pharmacist who compounded the prescription and who gave the copy.

Such provisions are fair and square and are needed badly. They must come, the sooner the better, for the protection of the public health and safety.

Let the Empire State lead the way, and no doubt other states will follow!

NITROGEN: ITS VIRTUES AND ITS VICES.

It is strange to think that we live by breathing an atmosphere containing 80 percent of nitrogen which in certain combinations is dealing out death on an appalling scale. There are practically no useful explosives employed in which the action of nitrogen is not concerned. Without its aid the great ships at sea could not be sunk, or innocent victims on land killed, or property destroyed by the air plane and dirigible, while it serves to mow down whole columns of men in the field, for rifles, howitzers, machine-guns, and grenades are all dependent upon, and made terribly deadly by, the offices of nitrogen. We every day pass on to our lungs something like 450 gallons of nitrogen per 24 hours, which would be enough to make 30 pounds of tri-nitro-toluol, or 40 pounds of gun-cotton. In our early training in the elements of chemistry we were wont to regard nitrogen as a singularly uninteresting gas on account of its negative behavior. It did not burn like hydrogen, it did not support combustion like oxygen, and, in short, its presence was generally assumed because of its inactivity and because it did not directly respond to any test. And yet this element is the greatest of all as a munition power; it is hardly an exaggeration to say that applied nitrogen is going to be a factor in deciding the issue of the war. It is remarkable, also, that this element forms the central figure in the protein group or tissue-repairing material of our foods. To say that without protein we die, practically means that without nitrogen we die. The gas without positive tests is as necessary in one form for our support as in other forms it is ready to destroy us. Nitrogen's power depends in the first place on the fact that it carries in oxygen to compounds which are thus rendered explosive, turning all the elements into a huge volume of gas, itself being set free. The very inertness of nitrogen, or its objection to affinity, means that on the least provocation it will easily release its partner oxygen, handing this over to the combuston of other elements present, with the formation of volumes of gases, the nitrogen returning to what is apparently its congenial condition, the free state. As a fertilizer in the soil nitrogen acts as a stimulant and supplies the necessary nitrogen to the plant. In other words, it is a plant food. Thus the remarkable thing about nitrogen above all other elements is its power to destroy life or to sustain it according to the associates with which it is in company. With certain accomplices it forms death-dealing explosives, with others it becomes a nutritive material. It is the essentially romantic element, devil or god, according to its associations.—Abstracted from *The Lancet*.

WHY APPLICANTS FAIL TO PASS THE STATE BOARD EXAMINATIONS.*

BY GEORGE M. BERINGER, JR., P. D.[1]

Why do men find it difficult to pass examination of the State Board of Pharmacy? It seems that almost every one gives a different reason. However, let us see what kind of answers the candidates give in the examinations, and we shall then be in a better position to judge the real reason.

The following answers were all given in examinations in Materia Medica before the New Jersey State Board of Pharmacy during the last year:

A Rubefacient "acts on worms."

Cannabis Indica "comes from Canada."

"*E-a-r-t-a-t-e-s* the nose" is the way one candidate describes the action of a drug.

Musk comes from the "Perpetual Follicles."

Musk "is a insect."

Musk "is Sumbul."

The official title of Alum is "Alumni."

Refrigerant was defined as "preventing from getting rancid." Example, "Benzoin would be a refrigerant in Benzoinated Lard."

"Citric Acid is mined."

"The *seed* of the plant is used in making Gossypium Purificatum."

"Supernal Glands" is the way one candidate writes Suprarenal Glands.

"Troches are intended as receptacles for medicine."

"The physical difference between Paraffin and Spermaceti is that Paraffin is purer."

The official title of Diphtheria Antitoxin is "Mamalia."

"A chemical heart tonic is stomach pump and emetic."

"Digestive ferments are those substances that give off gas in the stomach, as Castor Oil."

"Two classes of plant principles used in medicine are cotyledons and dicotyledons: Example bark—pith and wood."

"The chief constituent of Oil of Gaultheria is resin, starch and sugar."

"An Anthelmintic is an agent that recovers from consciousness."

The following is the wonderful effort of one candidate: "Gum Benzoin contains Myrosin. Becomes active when heated, then it can be used as a glue."

"Rhus Glabra grows in *South America* and *tropical countries.*"

"Hydrastis grows in *South America* and *tropical countries.*"

"Acacia grows in the *United States.*"

These last three were not given by one candidate only, but by many in the same examination.

"A Cholagogue is an agent used in cases of kidney disease to act as a filtering medium when the kidneys do not."

One candidate gives the correct definition, but gives as an example, Resin Cerate.

"Diaphoretic, a drug capable of retarding *flem* from *bronical* tubes; example—Matricaria"

The official name of nutmeg is " Mysteria."

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* Read before the New Jersey Pharmaceutical Association, June 22, 1916.

[1] Member Board of Pharmacy, State of New Jersey.

Another says this drug is "odorless and tasteless."

"Honey—the official name is Mail—the source is bee combs."

"Honey—the official name is Ovis Orris deposited by the bee."

"Honey is Mel Scrofula."

"The scientific name of the source of honey is *Glucose.*"

"Digitalis should be kept in tight sealed bottles because it picks up moisture from the air and it might deliquesce and become hardened."

"Digitalis should be made fresh often as the older it gets the stronger it is."

"Cod Liver Oil is the oil taken from the bladder of the Cod-fish."

" Cod Liver Oil is obtained from the bladder of the fish."

"The official title of Cod Liver Oil is Oleum Origanum."

" Couch Grass has a *vacum* inside."

"Terebinthina Canadensis is a rhizome and root; the habitat is Europe."

"Spanish fly is *Diama.*"

"Infusion of Wild Cherry should be made with *hot* water so as to liberate all traces of *Carbon Dioxide* and to prevent the liberation of HCn."

Another candidate guesses, "it should be made with cold water to prevent from decolorizing."

"A Febrifuge destroys worms."

"A Febrifuge is a substance which chases away."

"An Antiparasitic checks up perspiration."

"An Antiparasitic prevents paralysis."

"An Antiparasitic is a drug that will reduce fever."

"An Antiparasitic is a drug relieving or preventing spasms of fits."

"The source of Cantharides is *Mosche Cantharidu.*"

"A vesicant is a mild cathartic as Compound Licorice Powder."

"A vesicant is a drug that will serve as a vehicle."

"A vesicant is a drug that will enlarge a vessel to increase blood pressure, as Struchnine."

"Tragacanth is Dandelion."

"Senna is a *folio.*"

"The source of Wax is *Abies* Melliferous."

"Wax is Cetaceum obtained from Spermaceti gotten from *the bone of the whale.*"

A wonderful display of knowledge on the part of one candidate follows:

"Amygdalin in the presence of Sulphuric Acid—Alcohol and Ether produces an aldehyde, acetone and H C N"; and he gave an equation, balanced on paper, to prove it.

Here is a candidate that surely does not need his own prescription. In answer to a question concerning the proper base for an Ichthyol Ointment he answers: "I would recommend a 20 percent ointment for all ordinary purposes where reducing *information* is desired."

Where the candidate got the following is a mystery: "Two classes of plant principles are *Mamalia and Insecta.* A substance belonging to Mamalia is *Lard* from the *Sheep* and the *botanical* name is Ovis Aries."

"Acacia is used in Brown Mixture to keep the mixture in *suspense.*"

Here is a candidate who has a vivid impression:

"Asafetida—odor like a skunk, taste awful."

"Aqua Rosæ is obtained from the *pedestil* of the Rose—chiefly."

"Tinctura Ferri Chloridi—taste very dry."

" Flour of Sulphur is *groung* roll sulphur," is about all one candidate knew about the description of sulphur.

Another says: "Sulphur has k-n-o-w odor."

Prunum—"dose 25 of them—good help for the bowels."

Another describes prunes as "a liquid, dark red in color."

Still another gives a description and ends with, "as one might see in an Acme Tea Store."

The question was, "*a.* Define briefly each of the underscored words in the following definition:

The *concrete* milky *exudation* obtained by *incising* the unripe *capsules* of Papaver Somniferum.

"*b.* Why is unripe specified?"

A few of the answers are represented in the following:

"Concrete is a substance of very binding nature."

"Concrete is the *foundation* of the capsule."

"Exudation is the juice obtained from it by extracting it."

The man who gave the following is evidently a *Bible* student who became confused:

"Exudate means to be taken out of bondage."

"A capsule is a dehiscent fruit that splits and permits the seeds to come out *unsolicited.*"

"A capsule is a substance having a *vacum* which is capable of being filled by some other substance."

"Incising means exciting."

"Unripe is specified because it is of a *better nature* and yields more alkaloids."

"Cinchona is used as an *incipient* in pills."

"Two ferments of animal origin are Adeps Lanum and Adeps Lanum Hydrosus. Adeps Lanum is lard and is obtained from the fat of a hog."

"Uva Ursi is the bark of *Conden-drundum Tomentosi.*"

"Serum is Servum Antidiphtheritica obtained from the coagulated blood of a horse by separating the servum immerzed by the inoculation of Diphtheria Toxin."

"Rosa is a bulb with fleshy scales."

"Concrete saccharine exudation means the inside secretions of the *stomachic.*"

"Musk is obtained from the dried female insect."

"Moschus is spanish flies."

"Tri-iodo-methane is Denatured Alcohol."

"Tri-iodo-methane is Sulphonethylmethanum."

"The two varieties of Serpentaria official are Cinnamon and Sanguinaria."

"Bees belong to the family Ruminantia."

"Galla is from the *blatter* of Bos Taurus."

"Mel is the excreted juice of the beehive."

"Honey is Fel Bovis."

"Cantharides is found on *trees* of Cantharis vessicatoria."

"Cochineal is the *female part of the insect.*"

"Pistillate is when the *bark* of the plant contains pistils."

"Cera Alba is deposited by the *white bee.*"

"Aloes occurs in the form of a *limpid mass.*"

"Cerii Oxalas is from the intestinal juices of the ox (Bos Taurus) and the sheep (Ovis Aries)."

"Cerium Oxalate is a neutral principle from Goa Powder."

"Oxgall is a substance deposited in Quercus infectoria due to a puncture and ova of Cynips Tinctoria."

"Petrolatum makes it a softer *constituency.*"

"Oxgall is from the element Cerium by interaction."

"Fel Bovis is from the active principle of the cow or the ox."

"Acetphenetidinum is a white, *crystalline,* amorphous powder."

"Punica Granatum is Pumice Stone."

"A compound of Chlorine and Calcium Hydroxide is Lime Water."

"Some drugs are easier to *commute* before they are dried."

"The chief constituent of Aloes is *trunk branches.*"

"Chloroform and Ether are both liquids having a choking sensation."

"Thymol Iodide has a *strong viscid odor.*"

"Cocaine, in solution, is colorless with *toxicating taste.*"

"Aspidium contains *Cornutine,* Filicin, *Aspidospermine* and Filicic Acid."

"Opium is obtained from Coco Beans."

"Opium is obtained from Papavia from incisions of *bark* and *trunk.*"

"The Poppy is spliced and Opium removed a mass."

"Opium comes from the *seed* of *Popa* heads."

"Rhamnus Purshiana should be kept one year to make sure that the *Amygdalin* is not reacted."

"The concrete milk juice of Lactuea Virosa is the milk of a cow."

"The prepared milk juice of several species of Hevea is *Saccharum Lactis.*"

The following covered a full sheet of legal cap paper and was given by the candidate in answer to a question as to the proper base to be recommended to a physician for use in Ichthyol Ointment under certain conditions:

"The physician should know these things himself and he should not ask the Pharmacist. He went to college and he ought to know. But however I would advise him to use for a base Lanoline Hydrosis and Petrolatum because Lanoline Hydrosis contains water and that would be the maximum absorption according to my experience being in the drug business for over 11 years and I have compounded some Prescriptions and some Preparations.

M —— D —— (Name of candidate).

"Not a registered Pharmacist in any state but I hope to God I get registered in New Jersey as I am a married man with 2 children.

"This is the 2nd time I am taking the J. B. and I studied very hard."

No doubt the ludicrous side of these will appeal to you first. But, as the seriousness of it presents itself, you will find it hard to believe the answers *bona fide.*

Very many of those taking the examinations are graduates of a college of pharmacy or have had some college training. Yet, nearly 70 percent of the candidates fail, despite the fact that the examiners endeavor to make their examinations fair and of a practical character. The more I look into the matter, the more I am convinced that the system and the character of the instruction given in the college is largely to blame for these failures. Most of the answers show a tendency to memorize a miscellaneous collection of more or less unrelated facts. Candidates come to examiners time after time, saying they have taken this or that course, calculated to enable them to pass the State examinations, and want to know what text-books they shall study to be able to pass.

Many college professors seem content with "parrot" teaching and "parrot" learning from the text-books. Why is this so? In many cases the professors are selected, not with a view of their ability to teach, but because they are more or less successful in some work related to pharmacy or because they are willing to do the work cheaply for the sake of the prestige pertaining thereto.

How many teachers in our colleges of pharmacy have studied the rudiments of psychology, or possess even the rough psychology that enables many men to rightly judge the mental processes of their associates. How many of these teachers have had any training or even done reading in pedagogics? I doubt if one or two in a hundred could answer, yes.

The result is, that the average teacher loses sight of the fact that the students under him are only children of a larger growth, mentally as well as physically; that in them, to a certain extent, there still exists the natural inquisitiveness of the child, which makes him acquire knowledge so readily when guided in the proper manner.

The student of to-day has, in his early school training, a much better and broader foundation upon which to build his later technical training than had his predecessors. It is the duty of the technical instructor to establish points of contact with this earlier knowledge and upon it, with the aid of the student's natural inclinations, build a solid structure of knowledge, or rather, assist the *student* to build such a structure.

He cannot do this by "cramming" *dead* facts into his students. He must, rather, stimulate them by such a *live* presentation of his subject that the student will acquire the facts for themselves in the manner best suited to their individual mentality.

If this is done we shall have candidates who can *reason* answers for themselves, and can explain their text-book definitions when they use them. In other words, their knowledge will have become part of them, to be used as a means for further advancement, to what heights, who can tell?

MENTAL BLINDNESS.

Everybody values his eyesight as one of his most precious possessions. Loss of vision is rightly considered to be among the direst of afflictions.

But not everybody appreciates that there is such a thing as mental blindness as well as physical blindness; and that, to be really successful in life, it is as important to see facts clearly as it is to see objects clearly.

Many people, for that matter, unconsciously allow their mental vision to be clouded, perhaps almost destroyed, by cataracts of prejudice. They see facts darkly, because they refuse to think in a logical, unprejudiced manner.

Such people somewhat resemble the unfortunate man who had to be sent to a hospital for the insane because he insisted that he was dead. Being dead, he argued it was useless for him to take food. Accordingly, he was in a fair way to make himself dead in reality.

His relatives could not persuade him to eat, and the hospital doctors were equally unsuccessful. Finally, in a desperate effort to convince him that he was not dead, one of the doctors asked him:

"Can dead men bleed?"

"No," replied the insane man.

"Very well," said the doctor. "Now, look at this."

He took hold of the man's arm and cut it slightly with a sharp instrument, causing the blood to flow.

"There," he said, "you see you are bleeding. Consequently you cannot be dead."

"Ah, but I am dead. You have only proved that, after all, dead men can bleed."

Decidedly we must see facts as well as objects clearly. It is not enough to take pains to preserve our physical vision. Our mental vision must be safeguarded likewise.—H. ADDINGTON BRUCE.

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in THE JOURNAL, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

OTTO RAUBENHEIMER, Brooklyn, N. Y.

Contributed by the Chairman:

No. 249.

IRON CEMENT.

When powdered iron is mixed with an oxidizing agent, f. i. manganese dioxide, or an eletro-negative substance, such as sulphur, in a good conducting solution, like sal ammoniac, galvanic action is very rapidly produced. Ammonia is given off and the iron swells, forming iron oxide, and cements the mass together.

Iron Filings	40 parts
Manganese Dioxide or Sublimed Sulphur	10 parts
Sal Ammoniac	1 part
Portland Cement	20 to 40 parts

Water, to form a paste.

Prof. Sadtler prefers manganese dioxide to sulphur as a negative element. The free carbon in the powdered cast iron will act as the negative pole, but manganese causes quicker action.

Portland cement acts as a diluent, otherwise the cement will expand too much and will bulge out from the hole or crevice in the iron.

CRUCIBLE CEMENTS.

No. 250.

Clay	2 parts
Borax	1 part

Water, a sufficient quantity.

No. 251.

GRAPHITE CEMENT.

Fire-clay mixed with water binds the graphite well and stands high temperatures.

No. 252.

CRUCIBLE LID CEMENT.

Powdered Glass.
Solution of Sodium Silicate.

An excellent compound for cementing lids on crucibles.

No. 253.

MAGNESIA CEMENT.

(For Furnaces.)

Magnesia, hard-burnt at incandescent heat	80 parts
Magnesia, light-burnt at dull-red heat	20 parts

Make this mixture into a paste with water. A small portion of asbestos fibre will prevent cracking. The water must be driven off very slowly.

No. 254.

OXY-CHLORIDE CEMENT.

(Stone Cement.)

Solution Magnesium Chloride.
Magnesium Oxide, a sufficient quantity.

If the magnesium chloride is pure, *i.e.*, free from potassium or calcium chloride, then a solution of 18° Bé. can be used, otherwise its specific gravity should be 20° to 22° Bé.

The light magnesium oxide should be freshly calcined, or it is unsatisfactory for cement composition. Silica, wood pulp or ground wood are used as diluents.

Contributed by the Chairman:

TALC PREPARATIONS.

The following formulas are abstracted from the 1914 Report of the Society of Talc Industry in Austria-Hungary (*Ph. Ztg.*, 1915, p. 297) and other sources. The submitted formulas for pharmaceutical, cosmetic and technical preparations should be of interest to the pharmacist.

No. 255.

BORATED TALC.

I.

Boric Acid	250 Gm.
Talc	2250 Gm.
Oil of Geranium	15 mils

II.

Boric Acid	125 Gm.
Zinc Stearate	125 Gm.
Talc	2250 Gm.
Perfume Oil	15 mils

It is, of course, necessary that the ingredients are in the form of an impalpable powder. Add the oil to the boric acid, triturate well, add the other ingredients and sift through a fine sieve or bolting cloth.

It will be noticed that Formula I contains 10 percent and Formula II 5 percent of boric acid. A great many of the so-called borated talcums in the American market contain as little as 1 percent.

No. 256.

PULVIS TALCI BORICUS.

Boric Talc Powder.
B.P. Cx.

Boric Acid	10 Gm.
Starch	10 Gm.
Talc	80 Gm.
Oil of Geranium	0.2 mil

No. 257.

VIOLET TALC.

Orris	100 Gm.
Talc	900 Gm.

Extract of Violet, sufficient.

No. 258.

PULVIS TALCI PHENOLATUS.

Carbolated Talc.

Phenol	1 Gm.
Boric Acid	16 Gm.
Talc	233 Gm.

DUSTING POWDERS.

PULVIS INSPERSORIUS—PULVIS ADSPERSORIUS.

Dusting powders are external use preparations in the form of a very fine or impalpable powder, containing medicinal ingredients. They are protective and absorbent applications possessing soothing, healing, emollient, antiseptic or astringent properties.

The diluents in dusting powders are generally talc or starch. Foot powders are a subdivision of dusting powders.

No. 259.

PULVIS ACIDI BORICI ET AMYLI.

Boric Acid and Starch Powder.
B.P. Cx.

Boric Acid,
Starch, equal parts.

No. 260.

PULVIS ACETANILIDI ET ACIDI BORICI.

Acetanilid and Boric Acid Powder.
"Boracetanile."

Acetanilid	25 Gm.
Boric Acid	75 Gm.

No. 261.

PULVIS TALCI COMPOSITUS.

Compound Talc Powder.

Magnesium Carbonate,
Alum,
Talc, equal parts.

(Jewish Hospital, Brooklyn.)

No. 262.

PULVIS ACIDI BORICI COMPOSITUS.

Compound Boric Acid Powder.
Boric Dusting Powder.
(Beasly.)

Boric Acid	10 Gm.
Zinc Oxide	30 Gm.
Starch or Talc	60 Gm.

No. 263.

PULVIS IODOFORMI ET ACIDI BORICI.

Iodoform and Boric Acid Powder.
B.P. Cx.

Iodoform	25 Gm.
Boric Acid	75 Gm.

Dusting powder for wounds and ulcers.

No. 264.

PULVIS CALOMELANOS ET ACIDI BORICI.

Calomel and Boric Acid Powder.
B.P. Cx.

Mercurous Chloride	25 Gm.
Boric Acid	75 Gm.

No. 265.

PULVIS CALOMELANOS ET AMYLI.

Calomel and Starch Powder.
B.P. Cx.

Mercurous Chloride	25 Gm.
Starch	75 Gm.

No. 266.

PULVIS CALOMELANOS ET ZINCI OXIDI.

Calomel and Zinc Oxide Powder.
B.P. Cx.

Mercurous Chloride	25 Gm.
Zinc Oxide	75 Gm.

These "calomel dusting powders" are used for syphilitic sores, ulcers, and pruritus ani.

No. 267.

PULVIS INSPERSORIUS.

Dusting Powder.

Boric Acid,
Zinc Oxide,
Talc, equal parts.
(German Hospital, Phila.)

No. 268.

PULVIS IODOFORMI ET ACIDI BORICI.

Iodoform and Boric Acid Powder.

Iodoform,
Boric Acid, equal parts.
(German Hospital, Phila.)

No. 269.

PULVIS IODOFORMI COMPOSITUS.

Compound Iodoform Powder.

Tannic Acid	2 Gm.
Bismuth Subnitrate,	
Iodoform, of each	4 Gm.
Acacia	8 Gm.

(German Hospital, Phila.)

No. 270.

PULVIS ACIDI BORICI ET BISMUTHI COMPOSITUS.

Comp. Boric Acid and Bismuth Powder.
"A. B. C. Powder."

Boric Acid,
Bismuth, Subnitrate,
Calomel, equal parts.
(Bellevue Form.)

No. 271.

PULVIS ACIDI BORICI COMPOSITUS CUM LYCOPODIO.

Compound Boric Acid Powder with Lycopodium.

Boric Acid,
Bismuth Subnitrate,
Zinc Oxide,
Lycopodium, equal parts.
(Bellevue Form.)

No. 272.

PULVIS ACIDI BORICI COMPOSITUS CUM ALUMINE.

Compound Boric Acid Powder with Alum.

Boric Acid,
Calomel,
Alum, equal parts.
(Bellevue Form.)

No. 273.

PULVIS CALOMELANOS COMPOSITUS.

Compound Calomel Powder.

Calomel,
Bismuth Subnitrate,
Starch, equal parts.
(Bellevue Form.)

No. 274.

PULVIS CARBONIS LIGNI CUM IODOFORM.

Charcoal and Iodoform Powder.

Iodoform,
Charcoal, equal parts.
(Bellevue Form.)

No. 275.

PERSPIRATION POWDER.

Salicylic Acid	10 Gm.
Bismuth Subnitrate	15 Gm.
Zinc Oleate	10 Gm.

Dr. Shoemaker recommends this against profuse or fetid perspiration.
(*Handb. Therapy*, 4 ed., p. 661.)

No. 276.

PULVIS ZINCI OLEATIS COMPOSITUS.

Compound Zinc Oleate Powder.
B.P. Cx.

Zinc Oleate	25 Gm.
Boric Acid	25 Gm.
Oil of Rose	0.1 mil
Starch	50 Gm.

Zinc oleate in powder form is also known as Dr. Shoemaker's zinc oleate.

No. 277.

PULVIS INSPERSORIUS DIACHYLATUS.

Diachylon Dusting Powder.
E.B. III.

Boric Acid	3 Gm.
Lead Stearate	9 Gm.
Starch	88 Gm.

No. 278.

PULVIS INSPERSORIUS BENZOATUS.

Benzoe-Fettpuder.
E.B. III.

Zinc Oxide,	
Wheat Starch,	
Talc, of each	30 Gm.
Boric Acid,	
Hydrous Wool-fat,	
Petrolatum,	
Tannic Acid, of each	3 Gm.
Lycopodium	18 Gm.
Tinct. Benzoin	10 Gm.

Triturate the first 3 powders and divide into 2 parts. Mix one-half with the tincture of benzoin and allow to dry. Mix the other half with the fats, and triturate the 2 parts together with other ingredients and sift.

No. 279.

PULVIS INSPERSORIUS BENZOATUS.

Lux.

Zinc Oxide,	
Starch,	
Talc, of each	30 Gm.
Tinct. Benzoin	10 Gm.
Oil of Theobroma	6 Gm.
Boric Acid	3 Gm.

Triturate the first 4 ingredients and allow to dry. Then mix with the other ingredients and sift.

No. 280.

PULVIS INSPERSORIUS CUM ACIDO BORICO.

Boric Acid Dusting Powder.
F. M. G.

Boric Acid	5 Gm.
Talc	10 Gm.
Rice Starch	35 Gm.

No. 281.

PULVIS METHYL-ROSANILINI COMPOSITUS.

Compound Methyl Violet Powder.
Pyoktanin Dusting Powder.
B.P. Cx.

Methyl Rosaniline	10 Gm.
Boric Acid	90 Gm.

Used against malignant growths as a dusting applied on cotton, or with a powder insufflator.

No. 282.

PULVIS VIOLARIS.

Violet Powder.
B.P. Cx.

Orris	12.50 Gm.
Oil of Bergamot	0.25 mil
Oil of Neroli	0.02 mil
Starch, a sufficient quantity,	
To make	100 Gm.

Triturate the oils with the powdered orris, then mix in the starch, and pass through a fine sieve.

Used as a toilet powder and in the nursery, when a soluble powder is not required.

Soluble Toilet Powders consist chiefly of boric acid.

No. 283.

PULVIS INSPERSORIUS CUM BISMUTHO SUBGALLICO.

Bismuth Subgallate Dusting Powder.

Ph. Aust. VIII.

Bismuth Subgallate	20 Gm.
Talc	80 Gm.

No. 284.

PULVIS INSPERSORIUS CUM BISMUTHO SUBGALLICO.

Bismuth Subgallate Dusting Powder.

E.B. III.

Bismuth Subgallate	20 Gm.
Wheat Starch	10 Gm.
Talc	70 Gm.

"Dermatol" dusting powder is an astringent and is used for wounds and skin diseases.

No. 285.

PULVIS INSPERSORIUS TANNOFORMII.

Tannoform Dusting Powder.
F. M. G.

Tannoform	10 Gm.
Talc	20 Gm.

An astringent dusting powder.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CUBAN BRANCH.

A special meeting for the constitution of the Cuban Branch of the American Pharmaceutical Association was held Monday afternoon, July 24, at the Academy of Sciences, Havana.

Dr. Eduardo Garcia Faundo presided and Dr. Jose P. Alacan served as secretary. Doctor Faundo called the meeting to order at 3.30 P.M. A letter from J. W. England, secretary of the Council, was read, and thereafter Articles 1 to 6 of the By-laws.

Officials of the Executive Committee were elected as follows: President, Dr. Jose Guillermo Diaz; first vice-president, Dr. Manuel Johnson; second vice-president, Dr. Francisco Taquechel; secretary-treasurer, Dr. Jose P. Alacan.

On motion of Dr. Capote Messrs. Diaz, Alacan, Remirez and Miss Antonia M. Garrigo were elected delegates to the meeting of the American Pharmaceutical Association to be held in Atlantic City, September 5–9.

On motion of Dr. Jose P. Alacan the Cuban Branch of the American Pharmaceutical Association extended greetings to the Council and their fellow-members in the Association, and an expression of their appreciation for the honor which authorized them to organize this Branch. The motion was presented in the form of a resolution and made part of the minutes of the first session.

JOSE P. ALACAN, *Secretary.*

The editor is assured that the members of the American Pharmaceutical Association are much pleased that the Cuban Branch has been formed. The ties that bind the citizens of Cuba to the United States are of friendship, and pharmacy recognizes its co-workers everywhere. The association would doubtless be pleased to have other countries of America establish branches, and join in the work for which this body was organized in 1852.

NASHVILLE.

The Nashville Branch of the American Pharmaceutical Association met in joint session with the Nashville Drug Club, July 20. Dr. J. O. Burge presided.

After the minutes of the previous meeting were read and approved, a motion was made on the part of the Nashville Drug Club to have the officers of the Nashville Branch, A. Ph. A., become associate members of the former organization.

Ira B. Clark reported on the meeting of the Tennessee Pharmaceutical Association, held at Monteagle. He stated that the Association had decided to await the report of F. H. Freericks on a model pharmacy law, which he is now preparing, before taking action in drafting a State law. E. F. Trolinger also reported on the State Association meeting and gave a glowing account of the formation of a new secret society, known as the M. A. T. Club. The organization started out with a membership of 65, only the sterner sex being eligible to membership. Mr. Trolinger spoke of the initiation ceremonies which prepare these jolly good fellows for the rights and privileges of the organization. So pleasing was the result that a national organization is contemplated.

The president of the Branch appointed the following committees and constituted as follows. Program: E. A. Ruddiman, E. F. Trolinger and W. R. White. Membership: Ira B. Clark, C. C. Young, J. O. Burge. Publicity: W. R. White, E. A. Ruddiman, L. S. Pully, R. L. Eves, J. O. Burge, R. J. Kleiser and J. T. McGill. Abstracts: J. B. Sand, J. O. Burge and J. R. Mansfield. Legislative: G. A. Blodau, C. C. Young and F. L. Smith.

The new United States Pharmacopœia and National Formulary were considered, abstracts were read, and the changes made in the two revisions freely discussed.

Arrangements for the boat ride were announced for July 26.

William R. White, *Secretary.*

THE BOAT RIDE.

The boat ride on July 26, participated in by Nashville druggists and under the auspices of the Nashville Drug Club, proved to be a most enjoyable affair.

The finely equipped steamer *Robert Rhea* was chartered for the occasion and about 500 guests enjoyed the Club's first annual outing. A band of string instruments furnished music for the dance. Refreshments of all kinds were plentifully supplied. Nearly every retail and wholesale drug house of Nashville was represented, traveling men and members of the Board of Pharmacy, and many ladies graced the occasion.

The event was so successful and enjoyable that it is contemplated to make a boat ride, with a similarly constituted party, an annual event.

HOTEL CHALFONTE—HEADQUARTERS, AMERICAN PHARMACEUTICAL ASSOCIATION, SEPTEMBER 5-9, 1916

SEVENTEENTH ANNUAL MEETING OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES, AND TWELFTH ANNUAL MEETING OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

TO BE HELD IN PHILADELPHIA, AUGUST 31, SEPTEMBER 1 AND 2, 1916.

The next annual conventions of the National Association of Boards of Pharmacy and of the American Conference of Pharmaceutical Faculties will be held in Philadelphia, August 31, September 1–2, 1916; during the week preceding the convention of the American Pharmaceutical Association to be held in Atlantic City beginning Tuesday, September 5, at 11 A.M. American Pharmaceutical Association Headquarters at Hotel Chalfonte.

OFFICERS.

American Conference of Pharmaceutical Faculties: President, H. V. Arny; vice-president, R. A. Lyman; secretary-treasurer, Wilber J. Teeters; chairman of executive committee, J. A. Koch.

National Association of Boards of Pharmacy: President, J. C. Burton; secretary, H. C. Christensen; chairman of executive committee, Lawrence C. Lewis.

HEADQUARTERS AND HOTEL RATES.

The Rittenhouse Hotel, Twenty-second and Chestnut Streets, Philadelphia, will be headquarters for both American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy.

The Rittenhouse has made the following rates:

Single room with bath, $2.50 per day.

Two single rooms with private bath between, $2.00 per day.

Double rooms, two beds and private bath, $3.50 for two.

It is suggested that members desiring to secure accommodations write to the Rittenhouse Hotel and make reservations at as early a date as possible.

ENTERTAINMENT.

The Philadelphia Branch of the American Pharmaceutical Association is arranging to tender the visiting delegates and their ladies a trip to Willow Grove Park, with dinner at that resort Friday evening, September 1.

Other entertainment features, sightseeing, etc., will probably be arranged for those who prefer to stay over in Philadelphia Sunday and Monday, September 3–4, going to Atlantic City Monday evening or Tuesday morning for the A. Ph. A. Convention, the first session of which is held Tuesday morning, September 5, at 11 o'clock.

TRANSPORTATION.

Arrangements have been made with officials of the Pennsylvania Railroad to attach special Pullman coaches to their train "Eastern Express," No. 8 daily, leaving Chicago, Union Station 3.15 P.M., August 29, arriving in Philadelphia 5.50 P.M. the next day (Wednesday, August 30). It is hoped that all who can come by way of Chicago will arrange to join the party taking this train.

Choice of several routes and round-trip tickets from Chicago, good for thirty days, may be had at Summer Tourist Rates varying from $31.70 to $35.00. Pullman berth from Chicago to Philadelphia $4.50 additional.

Route desired must be specified at the time of purchase of round trip ticket. Upon notice to conductor, stop-over privileges may be had coming or going, at any point on the Pennsylvania system, without limit and without deposit.

Those wishing Pullman reservation on special cars, leaving Chicago at 3:15 Tuesday afternoon, August 29, should make reservations at as early a date as possible after August 15. Further information may be had by addressing Mr. T. R. Wilt, City Passenger Agent, Pennsylvania Lines, Chicago, Ill.

It is suggested that the report of the Transportation Committee of the American Pharmaceutical Association be consulted. See pp. 768–771, July issue.

NATIONAL ASSOCIATION OF BOARDS OF PHARMACY.

The Rittenhouse Hotel, at 22nd and Chestnut Streets, will be headquarters. Meetings will probably be held in the Bourse Building, located between Chestnut and Market Streets, and between Fourth and Fifth Streets.

TENTATIVE PROGRAM.

Thursday, August 31, 1916.

10.00 A.M. First Session. 1. Call to order by President. 2. Opening with Prayer. 3. Address of Welcome. 4. Response by R. H. Walker, Gonzales, Texas. 5. Roll Call of States. 6. Appointment of Committee on Credentials.

2.00 P.M. Second Session. 1. President's Address. 2. Appointment of Committee on President's Address. 3. Report of Secretary. 4. Report of Treasurer. 5. Appointment of Nominating Committee. 6. Report of Credential Committee. 7. Report of Executive Committee. 8. Appointment of Committee on Executive Committee's Report.

Friday, September 1, 1916.

10.00 A.M. Third Session. 1. Report of Legislative Committee. 2. Report of Committee on President's Address. 3. Report of Committee on Executive Committee's Report. 4. Report of Syllabus Committee. 5. General Discussion.

2.00 P.M. Fourth Session. 1. Report of Advisory Examination Committee. 2. General Discussion. 3. Reports of Standing Committees. 4. Reports of Special Committees. 5. Unfinished Business. 6. New Business. 7. Appointment of Special Committees. 8. Report of Nominating Committee. 9. Election and Installation of Officers. 10. Final Adjournment to be taken after Joint Conference with A. C. P. F. to be held on Saturday, September 2.

JOINT SESSIONS OF THE BOARDS AND FACULTIES, PHILADELPHIA

TENTATIVE PROGRAM.

Saturday, September 2, 1916.

President, H. V. Arny, Presiding.

Morning—10 o'clock precisely. Introductory Remarks by Representatives of the Joint Program Committee. Addresses on Subjects of Mutual Interest—by the Presidents of the Boards and Faculties, Messrs. Burton and Arny. Discussion of Addresses: Secondary Schools and Their Relationship to Colleges of Pharmacy. An Informal Discussion—led by Dean Wulling. Report of the Joint Committee on the Relationship of the Colleges with the Boards. Report of Committee on Prerequisite Arguments. Miscellaneous Business.

1.00 P.M. Adjournment.

President, John C. Burton, Presiding.

Afternoon—3 o'clock precisely. Report of Joint Committee on Questions and Answers. Helpful Criticisms of Colleges of Pharmacy—led by a Board Member. Helpful Criticisms of State Boards—led by a Faculty Member. Uniform Requirements for the Practice of the Profession of Pharmacy in the United States—Advantages of Such Requirements—Disadvantages—and How Obtained—by Dr. C. B. Jordan. Report of the Joint Committee on Higher Educational Standards. Miscellaneous Business.

6.00 P.M. Adjournment.

An evening session will be held, if sufficient business is presented or develops. Adjourned sessions of the Boards and Faculties will also be held, if necessary or desirable.

AMERICAN PHARMACEUTICAL ASSOCIATION

Organized: Philadelphia, 1852 Incorporated: Washington, D. C., 1888

OFFICIAL ROSTER FOR 1915-1916 *

GENERAL OFFICERS.

President—WILLIAM C. ALPERS	1353 Central Ave., Cleveland, Ohio
Honorary President—FABIUS C. GODBOLD	5601 Rosemary Pl., New Orleans, La.
First Vice-President—C. H. LAWALL	39 South Tenth St., Philadelphia, Pa.
Second Vice-President—E. A. RUDDIMAN	1916 Adelicia St., Nashville, Tenn.
Third Vice-President—LINWOOD A. BROWN	425 Transylvania Park, Lexington, Ky.
General Secretary—WILLIAM B. DAY	701 So. Wood St., Chicago, Ill.
Treasurer—HENRY M. WHELPLEY	2342 Albion Place, St. Louis, Mo.
Reporter on the Progress of Pharmacy—J. A. KOCH	Bluff and Pride Sts., Pittsburgh, Pa.
Editor of the Journal—E. G. EBERLE	253 Bourse Bldg., Philadelphia, Pa.
Local Secretary—CHARLES HOLZHAUER	732 High St., Newark, N. J.

OFFICERS-ELECT FOR 1916-1917.

(To be installed at the 64th Annual Convention.)

President—Frederick J. Wulling	University of Minnesota, Minneapolis, Minn.
First Vice-President—Leonard A. Seltzer	32 Adams St., W., Detroit, Mich.
Second Vice-President—Lucius E. Sayre	1323 Ohio St., Lawrence, Kans.
Third Vice-President—Philip Asher	1606 St. Charles Ave., New Orleans, La.
Members of Council, 1916-1917—James H. Beal	801 West Nevada St., Urbana, Ill.
William C. Alpers	Cleveland, Ohio
Harry B. Mason	P. O. Box 484, Detroit, Mich.

OFFICERS OF THE COUNCIL FOR 1915-1916.

Chairman—E. G. Eberle	253 Bourse Bldg., Philadelphia, Pa.
Vice-Chairman—John G. Godding	278 Dartmouth St., Boston, Mass.
Secretary—Joseph W. England	415 North Thirty-third St., Philadelphia, Pa.

MEMBERS OF THE COUNCIL FOR 1915-1916.

(Elected by the Association.)

Charles Caspari, Jr., Baltimore, Md.	Term expires 1916
Charles E. Caspari, St. Louis, Mo.	Term expires 1916
John G. Godding, Boston, Mass.	Term expires 1916
Otto F. Claus, St. Louis, Mo.	Term expires 1917
M. I. Wilbert, Washington, D. C.	Term expires 1917
George M. Beringer, Camden, N. J.	Term expires 1917
Caswell A. Mayo, New York, N. Y.	Term expires 1918
F. M. Apple, Philadelphia, Pa.	Term expires 1918
H. V. Arny, New York, N. Y.	Term expires 1918

(Elected by Local Branches.)

H. P. Hynson, Baltimore Branch	Baltimore, Md.
C. T. P. Fennel, Cincinnati Branch	Cincinnati, Ohio
C. M. Snow, Chicago Branch	Chicago, Ill.
George B. Kauffman, Columbus Branch	Columbus, Ohio
Samuel T. Hensel, Denver Branch	Denver, Colo.
William R. White, Nashville Branch	Nashville, Tenn.
E. H. LaPierre, New England Branch	Cambridge, Mass.
Thomas D. McElhenie, New York Branch	New York, N. Y.
L. C. Hopp, Northern Ohio Branch	Cleveland, Ohio
F. J. Wulling, Northwestern Branch	Minneapolis, Minn.
F. E. Stewart, Philadelphia Branch	Philadelphia, Pa.
J. A. Koch, Pittsburgh Branch	Pittsburgh, Pa.
Clarissa M. Roehr, San Francisco Branch	San Francisco, Cal.
J. A. Wilkerson, St. Louis Branch	St. Louis, Mo.
S. L. Hilton, Washington, D. C., Branch	Washington, D. C.
W. A. Hall, Detroit Branch	Detroit, Mich.
C. H. Rogers, West Virginia Branch	Morgantown, W. Va.

(Members of Council Ex-Officio.)

The President, Honorary President, Vice-Presidents, General Secretary, Treasurer, Reporter on the Progress of Pharmacy, Secretary of the Council, Local Secretary, Historian, and the Chairmen of the Sections.

OFFICERS OF THE HOUSE OF DELEGATES FOR 1915-1916.

Chairman—H. P. Hynson	423 North Charles St., Baltimore, Md.
First Vice-Chairman—F. W. Nitardy	1414 St. Paul St., Denver, Colo.
Second Vice-Chairman—O. F. Claus	3513 Herbert St., St. Louis, Mo.
Secretary—Jeannot Hostmann	115 West 68th St., New York, N. Y.

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* Please notify General Secretary of any errors or omissions discovered.

OFFICERS OF THE SECTIONS.

(Elected by the Several Sections.)

SCIENTIFIC SECTION.

Chairman—W. L. Scoville............81 Melbourne Ave., Detroit, Mich.
First Vice-Chairman—L. A. Brown............425 Transylvania Park, Lexington, Ky.
Second Vice-Chairman—J. L. Turner............281 Greene Ave., Brooklyn, N. Y.
Secretary—E. L. Newcomb............719 Sixth Ave., S. E., Minneapolis, Minn.

SECTION ON EDUCATION AND LEGISLATION.

Chairman—F. H. Freericks............1215 Mercantile Library Bldg., Cincinnati, Ohio
Secretary—R. A. Kuever............Iowa City, Iowa
Associates
Louis Emanuel............Second and Grant Aves., Pittsburgh, Pa.
Miss Zada M. Cooper............124 Bloomington St., Iowa City, Iowa
C. H. Packard............7 Central Square, East Boston, Mass.

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

Chairman—Joseph Weinstein............1771 Madison Ave., New York, N. Y.
Secretary—H. B. SeCheverell............3658 Navajo St., Denver, Colo.
Associate—Franz Berg............3206a California Ave., St. Louis, Mo.

SECTION ON COMMERCIAL INTERESTS.

Chairman—R. S. Lehmann............375 Third Ave., New York, N. Y.
Secretary—J. C. McGee............Jackson, Miss.
Associates
E. H. Thiesing............Gilbert and Lincoln Aves., Cincinnati, Ohio
W. H. Cousins............1804 Jackson St., Dallas, Texas.
G. H. P. Lichthardt............1800 M St., Sacramento, Calif.

SECTION ON HISTORICAL PHARMACY.

Chairman—Charles Holzhauer............732 High St., Newark, N. J.
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NORTHWESTERN BRANCH.

President—A. D. Thompson
Secretary—Edwin L. Newcomb
Council Representative—F. J. Wulling

PHILADELPHIA BRANCH.

President—J. W. Sturmer
Secretary—J. Ed. Brewer
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PITTSBURGH BRANCH.

President—George W. Kutscher
Secretary—B. E. Pritchard
Council Representative—J. A. Koch

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President—J. L. Lengfeld
Secretary—Clarissa M. Roehr
Council Representative—Clarissa M. Roehr

ST. LOUIS BRANCH.

President—Carl T. Buehler
Secretary—Julius C. Hoester
Council Representative—J. A. Wilkerson

WASHINGTON, D. C., BRANCH.

President—H. E. Kalusowski
Secretary—S. L. Hilton
Council Representative—S. L. Hilton

DETROIT BRANCH.

President—W. L. Scoville
Secretary—A. A. Wheeler
Council Representative—W. A. Hall

WEST VIRGINIA BRANCH.

President—W. A. Ream
Secretary—A. B. Berry
Council Representative—Charles H. Rogers

CUBAN BRANCH
(Havana)

President—Jose Guillermo Diaz
Secretary—Jose P. Alacan

The following were elected delegates to the Atlantic City meeting of the American Pharmaceutical Association: Drs. J. G. Diaz, J. P. Alacan, F. Remirez and Miss Antonia M. Garrigo.

SPECIAL SUB-COMMITTEES.

Special Sub-Committee on Boards of Pharmacy.

H. C. Christensen, *Chairman*	Chicago, Ill.	H. Lowell Meredith	Hagerstown, Md.
Ernest Berger	Tampa, Fla.	F. B. Haymaker	Clarksburg, Va.
Robert H. Walker	Gonzales, Texas		

Special Sub-Committee on Pharmacists in U. S. Government Service.

Albert M. Roehrig	Buffalo, N. Y.	Fred T. Gordon	Philadelphia, Pa.
Joseph F. Pearson	Annapolis, Md.		

Special Sub-Committee on Food and Drug Chemists.

Charles H. LaWall, *Chairman*	Philadelphia, Pa.	Lyman F. Kebler	Washington, D. C.
Linwood A. Brown	Lexington, Ky.	Charles Caspari, Jr.	Baltimore, Md.

Special Sub-Committee on Wholesale Druggists and Manufacturers.

Alfred R. L. Dohme, *Chairman*	Baltimore, Md.	Henry K. Mulford	Philadelphia, Pa.
Frank G. Ryan	Detroit, Mich.	W. T. Hover	Denver, Colo.

Special Sub-Committee on Faculties of Pharmacy Schools.

Edsel A. Ruddiman, *Chairman*	Nashville, Tenn.	Clyde M. Snow	Chicago, Ill.
Henry Kraemer	Philadelphia, Pa.	Charles W. Johnson	Seattle, Wash.
H. V. Arny	New York, N. Y.		

Membership Committee—Women's Section.

Mrs. John G. Godding	Boston, Mass.	Miss Theo. Bowie	Atlanta, Ga.
Miss Beth A. Michel	Blue Mountain, Miss.	Miss Bertha Ott	Cincinnati, Ohio
Mrs. M. M. Gray	Chicago, Ill.	Miss Elsie Day	Lincoln, Nebraska
Mrs. J. M. Bladen	Cedar City, Utah	Mrs. Jennie M. White	San Francisco, Cal.
Miss Helen R. Burns	Lewistown, Pa.	Mrs. John Culley	Ogden, Utah

AMERICAN PHARMACEUTICAL ASSOCIATION

PROGRAM FOR ATLANTIC CITY MEETING.

Monday, September 4 (Labor Day).

7.30 P.M. Meeting of the Council.

Tuesday, September 5.

11.00 A.M. First General Session. Meeting of Committee on Nominations. Meeting of Committee on Resolutions.
2.00 P.M. Section on Education and Legislation. Commercial Section. Women's Section.
7.30 P.M. Meeting of the Council. House of Delegates.
9.30 P.M. President's Reception.

Wednesday, September 6.

9.30 A.M. Second General Session.
12.30 P.M. Luncheon of College Alumni.
2.00 P.M. Section on Education and Legislation. Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards). Commercial Section.
7.30 P.M. Meeting of the Council. Joint Session of Section on Education and Legislation, the A. C. P. F. and the N. A. B. P. House of Delegates.

Thursday, September 7.

9.30 A.M. Scientific Section. Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards).
2.00 P.M. Scientific Section. Section on Practical Pharmacy and Dispensing (Pharmacopœias, Formularies and Standards). Women's Section.
7.30 P.M. Meeting of the Council (Reorganization). House of Delegates.

Friday, September 8.

9.30 A.M. Meeting of the Council. Historical Section. Scientific Section.
2.00 P.M. Final General Session.

Saturday, September 9.

Sightseeing.

THE ENTERTAINMENTS.

Local Secretary Charles Holzhauer advises that arrangements for the entertainments have been completed. One of the features will be a Theatre Party, provided by the New Jersey Association and the New York and Philadelphia Branches of the American Pharmaceutical Association; following this refreshments will be served. Opportunities will be provided for sailing and fishing; the use of roller chairs and admission to pier. It is contemplated to send out programs, conveying also other information. Everyone can be assured of a fine entertainment for every vacant period and the ladies have been specially provided for.

HOUSE OF DELEGATES, A. PH. A.

ATLANTIC CITY.

TENTATIVE PROGRAM.

Tuesday, September 5, 1916.—*Afternoon,* 4 *o'clock Precisely.*

Possibilities in Organization	Chairman's Address.
The Future of the House of Delegates	Vice-Chairman's Address.
Plans for the Reorganization of the House of Delegates	Secretary's Address.

The addresses of the Officers will constitute a report of the "Committee on the House of Delegates," provided for at its last meeting.

The Federation of all Pharmaceutical Bodies—Informal Discussion led by..Dr. F. J. Wulling.
Calling of Roll and Introduction of Resolutions.
Appointment of a Committee on Credentials.
Miscellaneous Business.

Wednesday, September 6, 1916.—*Afternoon,* 4 *o'clock Precisely.*

Report of Committee on the Pricing of Prescriptions—Separate Papers by Harry B. Mason, Chairman, F. W. Nitardy and Hugh Craig—Discussion led by F. W. R. Perry and George M. Schettler.
Consideration of Resolutions.
Unfinished Business.
Miscellaneous Business.

Friday, September 9, 1916—*Morning,* 11 *o'clock Precisely.*

Consideration of Matters Referred to the House of Delegates.
Communications from General Sessions and from the Council.
Unfinished Business.
Election and Installation of Officers.
Adjournment.

ATLANTIC CITY HOTEL RATES.

Chalfonte, headquarters, one person in room, $4.00; two in room, $8.00; two in room with bath, $10.00. Haddon Hall, one person in room, $4, $5, $6, $7; one person in room, with bath, $9.00; two in room, $7, $8, $9, $10, $12, $14; two in room, with bath, $9, and up. Hotel Strand, two persons in room, $8 to $10; two persons in room, with bath, $12. Marlborough-Blenheim, one person, $6 per day, and up. Royal Palace, one person in room, $3.50 and $4; two persons in room, $7 and $8; one person in room, with bath, $5, $6, $7; two in room, with bath, $9, $10, $11, $12. Hotel Traymore, one person in room, $7, $8, $10, $11, $12; European plan, one person in room, $3, $4, $5, $7, $8, $9; two in room, $10 to $16; European plan, two in room, $5 to $10. Hotel Bothwell, $3 and $3.50 per day, running water. The Mullica, $2 and $3 per day; European plan, $1 per day. The Shoreham, $2 per day, two in room; $3 per day, with bath. The Grand Atlantic, $2.50 per day, two in room; $3 per day, single rooms. The Wiltshire, $3.50, $4, $5, $6, per day, single rooms; $2.50 to $5, two in room. The Seaside, $3.50 and $4, two in room.

Prices are American plan unless otherwise indicated.

PROGRAMS OF THE SECTIONS

(THESE ARE TENTATIVE ONLY, AND INCOMPLETE)

SCIENTIFIC SECTION.

Officers: Chairman, W. L. Scoville; first vice-president, L. A. Brown; second vice-president, J. L. Turner; secretary, E. L. Newcomb.

Sessions: Thursday, September 7, 9.30 A.M. and 2.00 P.M., and Friday, September 8, 9.30 A.M.

PROGRAM.

A Continued Study in Adsorption, Illustrated with Experiments	J. U. Lloyd.
Corn Oil and Its Hydrogenation Product for Medicinal Use	L. E. Sayre.
Diagnostic Reagents	F. E. Stewart.
Physical Phenomena Pertaining to Solution and Crystallization	H. J. Novack.
Some Results of the Harrison Law	H. C. Wood, Jr.
Vegetable Taxonomy	O. A. Wall.
The Physiological Standardization of Cannabis	W. A. Pearson.
Polarized Light in Vegetable Histology	C. W. Ballard.
A Rapid, Accurate Method for the Determination of Organically and Inorganically Combined Iodine	Wm. J. Thompson and J. P. Snyder.
	A. Bolenbaugh.
The Alkaloids of Belladonna, Lily	F. B. Kilmer.
Laboratory Notes on Fowler's Solution, Spirit of Nitrous Ether and Quinine Sulphate	H. Engelhardt and O. E. Winters.
Chemicals Added to the U. S.P. IX	Otto Raubenheimer.
Sulphurous Acid, Its Extemporaneous Preparation	Otto Raubenheimer.
Hexamethylenamine	E. V. Howell.
A Review of the Review of the Requirements and Methods of Assay of the U. S. P. IX and the N. F. IV	M. I. Wilbert.
Adulteration of White Beeswax	K. F. Ehmann.

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

(Pharmacopœias, Formularies and Standards.)

Officers: Chairman, Joseph Weinstein; secretary, Hugh B. SeCheverell; associate, Franz F. Berg.

Sessions: Wednesday, September 6, 2.00 P.M.; Thursday, September 7, 9.30 A.M. and 2.00 P.M.

PROGRAM.

The report of the Committee on Pharmacopœias and Formularies is being prepared by Mrs. St. Claire R. Gay, as chairman, and members of the Committee, Messrs. Apple, McCartney and Currens.

J. Carleton Wolfe is arranging a Symposium on Prescriptions.

Chairman Joseph Weinstein writes that he has been promised and will have papers by Messrs. Hynson, Engelhardt, Fischelis, Osseward, Roon, Wilbert, Jones, Lascoff, Raubenheimer, Diner, Wimmer, Hostmann, Schaefer, Diekman, Arny, Mansfield, Niece, Latham and Lehman. So the prospects are good for an exceedingly interesting program.

SECTION ON LEGISLATION AND EDUCATION.

Officers: Chairman, Frank H. Freericks; secretary, R. A. Kuever; associates, W. S. Richardson, Geo. B. Topping and Zada M. Cooper.

Sessions: Tuesday, September 5, 2.00 P.M., Wednesday, September 6, 2.00 P.M. and 7.30 P.M.

PROGRAM.

Tuesday—2 o'clock. First Session.

Address of the Chairman	Frank H. Freericks.
Report of the Secretary	R. A. Kuever.
Report of the Committee on Patents and Trademarks	F. E. Stewart, Chairman.
Report of the Committee on National Legislation	John C. Wallace, Chairman.
Report of the Committee on Drug Reform	L. E. Sayre, Chairman.
Report of the Committee on Regulations for the Transportation of Drugs by Mail	Benj. L. Murray, Chairman.
Report of the Committee on Survey of the Pharmaceutical Teaching Institutions	Hugh Craig, Chairman.
A Plea for a Permanent Professional Tenure of the Pharmacist	C. F. Nelson.
Coöperation between State Medical and State Pharmacy Boards.—The enforcement of all laws pertaining to the preparation, purity, distribution and sale of drugs under their joint supervision by Drug Commissioners acting under their joint authority	Edward H. Thiesing.
Practical Drug Experience before Entering College	Otto Raubenheimer.
Nomination of Officers.	

Wednesday—2 o'clock. Second Session.

Consideration of the Proposed New Features for a Modern Pharmacy Law.
Reading of Papers.
Further Nominations and Election of Officers.

7.30 *o'clock. Third Session.*

This will be a joint session of the Section on Education and Legislation with the American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy. The program has not been completed but arrangements are going forward which will make this an exceedingly interesting session.

SUBJECTS FOR PAPERS.

Chairman Frank H. Freericks has prepared the following subjects for papers and asks for contributions, but he does not desire to limit the members to this selection. Papers should be sent to his address, 1004–1005 Mercantile Library Building, Cincinnati, Ohio. The title of the paper should be sent in at once to insure a place on the program.

What is a Potent Drug? A definition, and its advantage.

Publication of Potent Drug Content in All Ready-made Medicines. Is it desirable?

Potent Drugs and Preparations Containing Them Dispensed by Physicians and by Pharmacists on Physicians' Prescriptions. Does the Public Welfare require record for identification, or is the alternative direct disclosure of content?

Does Public Policy Require that the Right to Prepare Medicinal Compounds be Limited to the Pharmacists?

Who Should Properly be Authorized to Distribute Medicines of Any and All Character?

Pharmacy Board Members to be Graduates in Pharmacy.

Is it Desirable to Provide by Law for the Qualification of Teachers in our Colleges and Schools of Pharmacy?

Reciprocal Registration. How can it be facilitated and more generally adopted?

The National Association of State Boards of Pharmacy. Uniformity of requirements, and more general coöperation between State Boards. A legally authorized basis for coöperation and mutual agreement.

Has the Assistant Pharmacist a Recognized Position of Value under our Pharmacy Laws? Is it worth while to continue provisions for his registration?

Coöperation between State Medical and Pharmaceutical Boards. Joint control over the preparation, distribution, purity and sale of drugs.

Coöperation between Medical and Pharmaceutical Colleges. Exchange Professors. Possible advantage of the student both of medicine and pharmacy.

What is a Poison?

A Federal Pharmacy Law and Constitutional Limitations.

Is Practical Experience in Retail Pharmacy Desirable as a Prerequisite of College Graduation?

Are Privately Owned Schools and Colleges of Pharmacy Objectionable and Not Likely to Produce the Best Results?

Is the Executive Ownership and Use of Coined Names for Chemicals, Drugs and Their Preparations Objectionable? Should it be subject to limitation and restriction?

The Federal Narcotic Law (Harrison Law). Its enforcement. Its amendment.

What Can State Associations Do to Create a Greater Interest Among Retail Pharmacists for Subjects Pertaining to Pharmacy as a Profession?

Registration of the Pharmacy or of the Pharmacist. What should be the proper requirement?

SECTION ON COMMERCIAL INTERESTS.

Officers: Chairman, R. S. Lehman; secretary, J. C. McGee; associates, E. H. Thiesing, W. H. Cousins and G. H. P. Lichthardt.

Sessions: Tuesday, September 5, 2.00 P.M., and Wednesday, September 6, 2.00 P.M.

PROGRAM.

Address of the Chairman	Robert S. Lehman.
What is Wrong with the Business End of Pharmacy	Jacob Diner.
System and Vigilance—the Great Essentials of Business	Louis Schulze.
A Couple of Time-savers for Retail Druggists	David M. Fletcher.
An Appeal to the Retail Druggists to Take Greater Interest in U. S. P. and N. F. Preparations	Zeb W. Rike.
A Moving Window Display—a demonstration	Otto Raubenheimer.
History of Substitution, and *Quid pro Quo* in U. S. P. IX—the two papers constitute a part of the Symposium on Substitution	Otto Raubenheimer.
Jeopardizing the Pharmacist's Reputation for Fair Dealing	Robert P. Fischelis.
Accountancy and Business Administration—an address	Horace S. Pace.

SECTION ON HISTORICAL PHARMACY.

Officers: Chairman, Charles Holzhauer; secretary, G. G. Marshall; historian, E. G. Eberle.

Sessions: Only one session of this Section will be held, Friday, September 8, 9.30 A.M.

It will be impossible for Mr. Marshall to be present and, by request, President W. C. Alpers has kindly consented to act for him.

PROGRAM.

Address of the Chairman	Charles Holzhauer.
Report of the Secretary	George G. Marshall.
Nomination of Officers.	
Presentation of a life size picture of Herman Hager, dedicated by the New York Deutscher Apotheker Verein	Otto Raubenheimer.
History of the New Jersey Pharmaceutical Association	E. A. Sayre.
Some Exponents of Pharmacy	John F. Patton.
Pharmacy in New Jersey in the Sixties, as Recalled by an Apprentice	L. E. Sayre.
Early Experiences in the Drug Trade	Joseph L. Lemberger.
History of Mercury	Otto Raubenheimer.
Ten Years of New Jersey Pharmaceutical Association	J. F. Llewellyn.
Pharmacy and Medicine of Sir Walter Scott	Arthur Linton.
Happenings in Pharmacy a Century Ago	Otto Raubenheimer.
Historical Fragments	Edward Kremers.
Election of Officers.	
Installation of New Officers.	

WOMEN'S SECTION.

Officers: President, Mrs. G. D. Timmons; honorary president, Mrs. F. C. Godbold; first vice-president, Mrs. W. Bruce Phillips; second vice-president, Mrs. E. A. Ruddiman; third vice-president, Miss Jean Gordon; historian, Miss Bertha Ott; secretary, Miss Anna G. Bagley.

Sessions. Tuesday, September 5, 2.00 P.M., and Thursday, September 7, 2.00 P.M.

The President, Mrs. G. D. Timmons, has issued a call, extending an invitation to all the ladies, who will be in Atlantic City in attendance on the convention of the American Pharmaceutical Association, to participate in the proceedings. A general request for papers has been sent out and an interesting program is being prepared. An informal reception will be held during the first session, Tuesday afternoon, at 2.00 P.M.

THINKING FOR YOURSELF

Suddenly a man wakes to the realization that he must do his own thinking—that he is as a swimmer who beyond the life ropes or the beach guard's reach must depend on his own powers. At the top of any going concern one sees commanders who are envied, because apparently they can "take it easy" or continue at a driving pace, just as they choose. The underlings must keep early and late hours, they must fetch and carry, they must obey and serve without back talk, and though by their industry (they think) the business thrives, they only get a pittance for pay compared with what they deserve.

But possibly the thought has not occurred to the man at the bottom that the man at the top got there by the survival of the fittest, because he endured the heat and burden of the day. He has made the places for the subordinates to take. He has created the opportunities into which they step. There would be no snug salaried berth if he had not gone before to prepare the way.

Nothing is easier than to get the hammer out and perform in an anvil chorus, like frogs in a marsh, with voices blaming and abusing the man higher up. The passengers meet in the cabin and pass resolutions condemning the captain and telling him how to run the boat. But alone on the mist-hung bridge he stands and is responsible for the direction of the vessel toward the haven where the passengers would be. The captain of a ship of state, the captain of an industry, incurs the same kind of batrachian reproach from those who are not responsible. He must do the anxious planning. Others execute the orders that he gives. One wrong decision may spell ruin for them all.

A man may have given years and years to build a fortune. His very life-blood has perhaps been poured into the arteries of the business he has created. Then he takes the fruits of his long toil and prayerfully puts them into a new venture. The undertaking miscarries. He must begin again at the bottom. He is a power among his kind if he can turn the trick and rise again undaunted, and get back to the place from which he was dashed.

Business needs brains as well as capital. Any fool can lose money hand over fist. To decide rightly when to throw a dollar after a dollar, or a million after a million, is business genius. The leaders in business have an uncanny intuition for futurities, a second-sight enabling them to pierce the veil of the beyond. That is why the capital financial prizes go to them.

Let it not be thought that all the premiums worth having go to the kind of thinking that advances merely the commercialists. Success in life marches and rests under other standards than those of the dollar-sign. Life grows beautiful and dear by the sensitive perceptions of other values than the price-mark. Birds and flowers and water-brooks and forests have nothing to say to the man "with eyes like little dollars in the dark" who always thinks of the cash appraisal of the view. The philosopher in his garden or his quiet room knows countless satisfactions money cannot buy. As surely as the imperial mind in trade or commerce, he does his thinking for himself, in a sturdy, fine and honorable independence. He lives his life, like Brashear, of Pittsburgh, not thinking of a bank account, but considering the good he can do, and loving all breathing creatures whether they walk on four legs or on two. Such a life has its own peculiar satisfactions that are born of intellectual freedom, and therefore born of truth.—*Editorial Phila. Ledger.*

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, E. FULLERTON COOK, H. B. MASON, F. J. WULLING, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

AGE LIMIT WILL NOT BAR HOSPITAL STEWARDS FROM THE EXAMINATIONS FOR PHARMACISTS IN THE U. S. NAVY.

That the influence of the American Pharmaceutical Association is helpful and that the high aims of this organization are recognized, was evidenced in the successful effort resulting in removing the age limit, which debarred hospital stewards, who had done service for years in these positions, from advancement. The Bureau of Navigation in the Navy Department had issued an order that no one should be eligible as pharmacist, who was over 35 years of age. Before this order went into effect hospital stewards of long service were permitted to come up for examination when vacancies occurred in the ranks of pharmacists or when there were additional appointments to be made.

In the reorganization additional pharmacists are required, and the injustice became apparent to Secretary Wm. B. Day, who directed the attention of Chairman S. L. Hilton, of the Committee on the Status of Pharmacists in the Government Service, to this situation. Mr. Hilton called at the Navy Department and was accorded a hearing by the Chief Clerk of the Bureau of Medicine and Surgery and also by the Chief of the Bureau. Mr. Hilton in speaking for the Association apprised them of the deep interest this organization had in seeing good men in service and also pointed out the injustice to those who had done faithful service as hospital stewards, by eliminating them on account of age. That such action would keep capable men from enlisting, if there was no higher position attainable.

The Chief of the Bureau expressed his pleasure because the Association was interested and took the question up with the Secretary of the Navy, and as a result an order was issued striking out the age limit.

Chairman Hilton several days thereafter called on Secretary Daniels of the Navy and extended thanks on behalf of the American Pharmaceutical Association; the secretary replied that he was glad to receive a representative of the Association and had great pleasure in correcting the injustice. During the conversation Secretary Daniels stated that in his younger days he spent several years in the drug business. He expressed himself regarding the hospital stewards, by saying that they were efficient and reflected credit on themselves and the Service.

Chairman Hilton desires that the members of the Association learn of the cordial reception given him, and also of the high regard in which the hospital stewards and pharmacists are held by the Department.

The grade of Pharmacist carries a commission; about 30 more will be added to the list, and the hospital stewards will have an opportunity to qualify by examination.

The work of the Association is not without its rewards and this recognition means more to pharmacy than simply the success provided for this limited number of pharmacists.

PROFESSOR ELIE METCHNIKOFF.

Professor Elie (Iliya) Metchnikoff's discovery that phagocytes destroy the disease germs and protect injuries against malignant bacteria, and therefore the utility of the process of inflammation, established his place as one of the world's greatest scientists. As with many other men of science, some of his investigations were not comprehended by the public, who will probably always associate his name with sour milk as prolonging life, without thinking of the investigations that have to do with the theory, just as Darwin's name is associated with the descent from monkeys and Newton's with the falling apple.

Virchow discovered the leucocytes, Pasteur the microbes and Metchnikoff supplied the missing link that brought these discoveries together, developing the modern serum therapy.

Professor Metchnikoff was born at Livanovka, a province of Kharkof, Russia, May 15, 1845, and passed out of a useful life at Paris, July 15, 1916. He graduated at Kharkof University and also studied at Giessen and Munich, and was professor of zoology at Odessa and Petrograd. His first important discovery was made while at Messina and engaged in the investigation of the digestion of marine invertebrates. In 1888 he came to the Pasteur Institute at Paris.

PROFESSOR ELIE METCHNIKOFF.

Many honors were conferred on him; on his seventieth birthday he was presented with a golden book forming a unique record of the latest scientific researches, signed by the foremost modern scientists. In 1908 the Nobel Prize for medical research was divided between the late Dr. Paul Ehrlich and Prof. Metchnikoff. The $20,000 which he thus received he devoted entirely to the furtherance of his scientific researches.

SIR WILLIAM RAMSAY.

The picture herewith of Sir William Ramsay was taken from a group with Dr. Rudolph Messel and Dr. William H. Nichols while in attendance at the International Congress of Chemistry, in Washington, in 1912. Sir William also visited in this country last year; he was Lovering lecturer at Johns Hopkins University.

William Ramsay was born in Glasgow, October 2, 1853; here he also received his earlier education, and while at the university was a pupil of Lord Kelvin. He attended the University of Tübingen, receiving his degree there at the age of twenty-one. For a time he was assistant professor of chemistry in Anderson College, and thereafter for six years tutorial assistant in chemistry at the University of Glasgow. In 1880 he was appointed professor of chemistry in the University College, Bristol, and thereafter came to the University of London; from this position he retired in 1913, as Professor Emeritus. He died at his home in Beechcroft, Hazelmere, Bucks, England, July 23, 1916.

SIR WILLIAM RAMSAY.

A record of the passing of one of the world's eminent chemists, if not the greatest, should be made in this JOURNAL, but more than a passing notice of some of his discoveries is impossible. It may, perhaps, be said that the great scientist did not accomplish much which was of direct and immediate commercial value, but future history will more than likely tell another story. He set his brilliant mind on purely scientific results, and an unusually gifted imagination contributed largely to his achievements. His work with John William Strutt (Lord Rayleigh), professor of natural philosophy, Royal Institution, on the solution of the problem concerning the differences in the density between atmospheric nitrogen and that obtained from compounds led to the discovery of argon. His most recent achievement, that of transmutation of radium into helium, upset all former theories, may prove the interrelationship of all the elements, and has opened up a new world of research into the very atoms of elements. Deserved titles and honors were freely bestowed upon him. He was an honorary member of the British Pharmaceutical Conference.

TEAR-PRODUCING GASES USED IN THE WAR SAID TO BE MANUFACTURED FROM SABADILLA.

Press reports state that some of the asphyxiating gases, and more particularly the tear-producing, are made from sabadilla, a plant of Venezuela and Mexico. The source is *Veratrum sabadilla* Retztus; the Spanish of sabadilla is *cebada,* meaning barley.

The highly poisonous seeds have long been used in medicine, and contain cavadine, or veratric acid and sabadalline; the effect is accelerating the heart beat. Sabadilla dust is a powerful, harmful irritant and laborers working with it are obliged to wear protecting masks. In Venezuela it is used by cattle raisers as an insecticide and in the manufacture of disinfectants. Its importation into Europe has been in the past for tanning fine leathers and as a mordant for dyes.

PRODUCTION OF ATROPINE POSSIBLE IN THE PHILIPPINES.

It has been ascertained that the plant *Datura alba,* which grows wild in abundance in every part of the Philippine Islands, contains a large amount of atropine. In some localities the plant reaches a height of 6 feet; it is not cultivated, and no use is made of it commercially. J. F. Boomer says in *Commercial Reports* that an American manufacturer, to whom samples were sent, ordered a large supply, and that in order to take care of any demand which may result will require that arrangements be made for collection of the plant or those parts of it that contain most of the alkaloid.

OBITUARY

DR. WILLIAM SIMON.

> "There is a remembrance of the dead to which we turn, even from the charms of the living."

Almost any tribute that might be paid Dr. William Simon, "Professor Simon," would fail to satisfy those who knew him, who were invariably those who loved him. The same tribute would undoubtedly be considered fulsome by those who had not had the good fortune to be closely associated with this unusual man. It will be safe to state, however, that there are very few who have made and left the same helpful impression upon American pharmacy and American pharmacists during the last forty years. The opportunity for this was offered during his long service as a teacher of chemistry, as applied to pharmacy, and by the extensive use of his text-book on chemistry by students of pharmacy.

Dr. William Simon, the son of the Rev. William and Agnes Briegleb Simon, was born at Eberstadt, in the Grand Duchy of Hesse, Germany, on February 20, 1844. He attended the schools of Giessen from 1852 to 1860. In the latter year, he entered a drug store and clerked in different stores until 1866. The following year, he entered the University of Giessen to study chemistry, and took his degree of Doctor of Philosophy in 1869. He was assistant to Prof. H. Will at the university, 1869–1870, served in the Sanitary Corps during the Franco-Prussian war and came to Baltimore at the close of 1870, as chemist for the Baltimore Chrome Works, which position he retained for nearly thirty-seven years. The first laboratory for instruction of analytical chemistry in a college of pharmacy was established by him at Baltimore in 1871. The next year, he became professor of chemistry in the Maryland College of Pharmacy and continued as such until 1902. He was also professor of chemistry in the College of Physicians and Surgeons of Baltimore from 1880 to the time of his death, and professor of chemistry in the Baltimore College of Dental Surgery from 1888 to 1916.

In 1885, he was elected a member of the American Pharmaceutical Association and, at the Old Point Comfort meeting, in 1890, he was elected chairman of the Section on Education and Legislation, presiding over that section the next year at New Orleans. He contributed several important papers on educational topics during the next few years. One of the features of the Baltimore meeting, in 1898, was his interesting and instructive lecture on liquid air.

DR. WILLIAM SIMON.

The history of the Maryland Pharmaceutical Association shows that he took part in its organization and contributed largely to its proceedings. He was one of its incorporators and its fifth president, serving as such in 1887. Until his death, he continued his membership in the American Chemical Association and the American Association for the Advancement of Science.

Dr. Simon was married on May 13, 1873, to Paula Driver, of Baltimore, and lived at Catonsville, Maryland, for about forty-two years. They had one child, a promising boy, who died at the age of ten years of diphtheria, before the introduction of antidiphtheritic serum. Dr. Simon died at his summer home at Eagles Mere Park, Pennsylvania, on July 19, 1916. His body was cremated at Baltimore on July 21 and the ashes buried in Loudon Park Cemetery. He was the author of Simon's Manual of Chemistry, a well-known text-book used in many schools of pharmacy, medicine, and dentistry, which has passed through ten editions. Several honorary degrees had been conferred upon him, among them that of "Doctor of Medicine," by the College of Physicians and Surgeons, that of "Doctor of Science," by the University of Pennsylvania, and that of "Doctor of Laws," by the University of Maryland.

While the subject of this sketch devoted his life to the practice and teaching of chemistry, he had many avocations; one was painting, at which he did some very creditable work. Another was color photography, upon which he delivered frequent lectures; he, undoubtedly, excelled in this and his collection of color photographs is one of the finest in America. It was his delight to become familiar with the development of the sciences and was never so happy as when giving popular lectures on liquid air, Röntgen ray, *et cetera.* The strong point in these lectures was the pains he took to make interesting demonstrations.

Dr. Simon, in personality, was unique. To students, he was much more than a teacher—he was often an inspiration—a leader into the better and higher things of life. His was a great, sympathetic heart that made those who needed his help know that he was their friend and willing helper. There are scores of his students, pharmacal, dental and medical, who are proud to acknowledge their deep obligations to their dearly beloved "Professor Simon."

> "Nature has a royal line and makes no mistakes in the kings she crowns."

H. and C.

NICHOLAS HENRY MARTIN.

When the picture "Signing the Indenture of a Four Years' Apprenticeship to Pharmacy," was presented in the July number, p. 768, we did not anticipate the sad duty of recording the departure of our fellow-member, Mr. N. H. Martin, in the succeeding issue of the JOURNAL. With the reproduction of the above mentioned interesting item came a note framed in Mr. Martin's usual appreciative style telling of the happy memories he enjoyed of meeting with the members of the American Pharmaceutical Association, and which organization he joined in 1891.

The report on the event in last month's number, reproduced from the *Pharmaceutical Journal and Pharmacist* of June 3, 1916. may be considered in connection with this brief sketch of Mr. Martin's life and activity.

Nicholas Henry Martin, Ph.C., F.C.S., F.R.S.E., died July 5, at Ravenswood, Low Fell, Gateshead, England. He was born at Trebarveth, Cornwall, May 2, 1847. In 1863 he was apprenticed to John Solomon, of Penryn, Cornwall, for a term of four years. Mr. Martin passed his Minor and Major examinations December, 1868, while assistant to Henry Deane at Clapham. In 1873 he took over the pharmacy of William Ransom of Hitchin, and within less than two years became associated with Dr. H. B. Brady at Newcastle-on-Tyne; after the retirement of the latter, Mr. Martin became proprietor of the business which was subsequently converted into a private limited company as Brady & Martin, Ltd.

Mr. Martin held many important positions in British pharmaceutical organizations, among them, President of the British Pharmaceutical Conference, and when the International Congress of Applied Chemistry met in London, he presided over the Pharmaceutical Section of that body.

Mr. W. A. H. Naylor in speaking of the deceased said: "Mr. Martin did nothing by halves, and he brought to bear all the qualifications he possessed for sound and finished workmanship. He sedulously cultivated his natural gifts and used them freely for the benefit of his fellow-pharmacists." A nephew, Dr. William Martin, in a letter to Professor Remington, concludes by saying of his uncle, "He valued greatly his connection with the American Pharmaceutical Association and felt the greatest pleasure in recalling his visits to America; he spoke in the most appreciative terms of the hospitality he had enjoyed among the members and had derived great benefit from attendance of the scientific meetings. The grip of practical essentials and the hold on scientific truth reached pleasurably on a kindred soul."

Mr. Martin did excellent work for Newcastle pharmacy by resuscitating, in 1885, the educational course instituted by Brady, Proctor, and others; this was one of the events of his pharmaceutical career of which he was proud; pharmaceutical education was his outstanding characteristic and always held his interest, to it he gave much of his time and energy.

SOCIETIES AND COLLEGES

AMERICAN CHEMICAL SOCIETY TO HOLD ANNUAL MEETING IN NEW YORK.

The annual meeting of the American Chemical Society will be held in New York in conjunction with the second National Exposition of the Chemical Industries at the New Grand Central Palace. It is planned to hold a public meeting at the College of the City of New York, on either Tuesday or Wednesday of the week of meeting—September 25–30, 1916—at which topics pertaining to chemistry and national welfare will be made the subject of lectures by men of prominence in public affairs.

The various divisions of the American Chemical Society will present and discuss papers and reports in the halls of Columbia University in the forenoons, while the afternoons will be taken up with conferences.

NATIONAL ASSOCIATION OF RETAIL DRUGGISTS.

The annual convention of the National Association of Retail Druggists will be held in Indianapolis, September 18–22. It is needless to remark on the coöperative work of this association with that of the American Pharmaceutical Association, in fact, there are many who hold membership in both organizations, and what is more and better, usually the enthusiasts of one are also deeply interested in the work of the other. While the N. A. R. D. Journal and the officials give publicity to the event, we make the announcement for record in these pages. The convention city is making preparations for the coming meeting, and the experience of the American Pharmaceutical Association is that a spirit of cordiality abounds in Indianapolis.

THE NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

The Baltimore Entertainment Committee of the National Wholesale Druggists' Association Convention, which will be held the first week in October, has planned an interesting automobile trip through Baltimore's beautiful suburbs, a visit to the Baltimore Country Club for luncheon, then a boat trip down the Patapsco River and out into the Chesapeake Bay with a stopover at Annapolis. A real Maryland oyster roast on the Maryland sho', where selected, succulent Chesapeake bivalves will be served in five styles—roasted, fried, raw, fritters and stewed—with all the necessary trimmings, and a real Maryland darky band, which will make guests keep time to the music. Then there is to be a card party and a dance one night on the Emerson roof, and a private vaudeville another night, and a grand banquet at the Belvidere, where everyone will forget there is such a thing as trouble in the world.

STATE ASSOCIATION MEETINGS.

ALABAMA.

The thirty-fifth annual meeting of the Alabama Pharmaceutical Association was held at Gadsden, June 21–22.

President Scarborough spoke of the conditions in pharmacy and recommended the appointment of a committee on publicity to distribute information among the members; he endorsed the Stephens Bill and urged support of the American Pharmaceutical Association. Dr. James of the federal revenue department explained the exactions of the Harrison Law. A member remarked that he was unaware of the requirement that a narcotic prescription must be dated until it cost him a $25.00 fine for overlooking this.

In an address by S. A. Williams on sidelines the speaker contended that the profits of the drug business depended on such sales, that the prescription department was essential to the drug business but did not bring profit. A. P. Rogers in discussing prescription prices said that the charges must be advanced if any profits were to be expected. This in a measure, it was contended, is due to the advanced prices of drugs, but even prior to the rise, prescriptions were compounded without adequate charges.

Officers for the ensuing year were elected as follows: President, W. S. Vance, of Gadsden; vice-presidents, W. N. Varnon, of Selma, and C. R. Walker, of Ensley; treasurer, S. L. Toomer, of Auburn; secretary, W. E. Bingham, of Tuscaloosa.

Tuscaloosa was selected as the place for the next annual meeting, which is to be held the third Wednesday in June, 1917.

CALIFORNIA.

The annual meeting of the California Pharmaceutical Association was held in Los Angeles, June 14–15.

The keynote in President Rees' address was Organization and Coöperation. He spoke for harmony between the Association and the Board of Pharmacy which had at times not been as friendly as should be the case. He spoke in favor of the Stephens-Ashurst Bill, affiliation with the National Association of Retail Druggists and the support of that organization was advocated.

Quite a number of very interesting papers were read, among them one by Chas B. Whilden, in which he spoke for larger manufacturing by retail druggists and advertising their own goods by window display, and other means of publicity used by manufacturers.

Revision of the United States trade mark laws came up for consideration, and the work of the American Pharmaceutical Association in this connection encouraged.

Carl E. Rosenberg read a paper on salesmanship, in which thorough business organization, service and loyalty were pronounced as potent factors.

The commercial value of a drug store laboratory was made the subject of an excellent paper by Carl Dyna, of Patten.

The officers elected for the ensuing year are: President, E. G. Binz; first vice-president, W. Bruce Philip; second vice-president, Frank A. Gardner; secretary, E. A. Henderson; treasurer, L. L. Broodeen; executive committee, R. W. Monkman, chairman; L. Harris, K. B. Bowerman, J. P. Koehler, J. A. Sanford, George Smith.

COLORADO.

The Colorado Pharmaceutical Association held its twenty-seventh annual meeting at Estes Park.

Legislative matters received considerable attention and measures were proposed defining the status of alcohol so that it may be legally purchased and used in the manufacture of non-potable preparations. A proposition to amend the pharmacy law to provide the Board of Pharmacy with a secretary who should not be a member thereof; and also to provide an amendment forbidding the use of "drug store" or "pharmacy" signs to any but authorized persons. It was also recommended that reciprocal registration be put into effect by the Board of Pharmacy if permissible under the present law; if not, then the law should be so amended as to permit of such registration.

The following officers were elected: President, Fred C. Heverly, Longmont; first vice-president, Thos. C. Coltman, La Junta; second vice-president, C. Van Zandt, Denver; treasurer, C. D. Smith, Grand Junction; secretary, Chas. J. Clayton, Denver; historian, D. C. Taylor, Pueblo. As delegates to the American Pharmaceutical Association, E. G. Fine and H. B. SeCheverell were named; and L. Wiss [illegible] was nominated representative to the National Association of Retail Druggists.

CONNECTICUT.

The fortieth annual meeting of the Connecticut Pharmaceutical Association was held at the Shoreham Hotel, Morris Cove, New Haven. The following officers were elected for the ensuing year: M. Frank Hope, of New Haven, president; Carl S. Ramsay, New Britain, first vice-president; Edward Nolan, Torrington, second vice-president; P. J. Garvin was re-elected secretary-treasurer.

FLORIDA.

The Florida Pharmaceutical Association met at Hotel DeSoto this year.

President M. W. Taylor in his address spoke of the strides that had been made in the drug business in Florida and expressed satisfaction in the largely increased membership of the Association.

The Florida Pharmaceutical Association divides the work of the annual meetings, by assigning papers on pharmacy to a Scientific Section, while those dealing with business subjects are discussed in the Commercial Section. There were a large number of papers read in both of these sections; those in the former were in charge of W. D. Jones, while the latter were arranged for by P. F. Bloodworth.

The newly elected officers are: H. H. D'Alemberte, Pensacola, president; J. S. Jewitt, Lakeland, first vice-president; W. M. Perry, Miami, second vice-president; A. L. Wise, Jasper, third vice-president; J. H. Haughton, Palatka, secretary and treasurer. Executive committee: D. W. Ramsaur, of Palatka, M. M. Taylor, of Tampa, and W. D Jones, of Jacksonville.

IDAHO.

The Idaho Pharmaceutical Association convened in the annual session at Guyer Inn, June 19–21. This selection of place seemed to be so satisfactory to the members that the 1917 convention will be held here.

President Bee in his address spoke of the unsatisfactory condition of the drug market without a parallel in the history of the drug trade. Instead of drafting a new pharmacy law, he recommended that the present one be amended. He favored the contemplated National Price Maintenance Measure.

Secretary Whitehead reported that the Association now had 128 active members. The reorganization plan was adopted by the Association in line with that of the Utah Association.

Mr. John Culley, of Ogden was present, and explained their method of organization wherein representatives of the Association were appointed in various districts.

Quite a number of papers were read and discussed.

The officers elected for the ensuing year are: President, George J. Bailey, Pocatello; first vice-president, E. E. Colpin, Oakley; second vice-president, L. L. Daus, Weiser; secretary, William F. Bee, Boise; treasurer, L. A. Harmon, Caldwell. Executive Committee: first district, E. L. Prebsting, Wallace; second district, J. T. Ray, Lewiston; third district, Tom Poole, Nampa; fourth district, C. K. McCrum, Boise; fifth district, Mark Aukema, Hailey; sixth district, Frank Murray, Twin Falls; seventh district, S. S. Ferguson, Pocatello; eighth district, W. E. Ricks; ninth district, Hugo J. Enenbach, Driggs.

INDIANA.

The Indiana Pharmaceutical Association met in Indianapolis. Dr. H. E. Barnard, state food and drug commissioner, delivered an address in which he spoke of the activities of his department, complimenting the druggists by saying that they had lightened the work of the commission by complying with the laws and regulations. That there were fewer illegal drugs on the shelves of the drug stores to-day than ever before. He said that out of 246 drug samples analyzed at the State laboratory in the last year, only five were listed as being illegal. He also pointed out that by coöperation, the manufacturers, the retailers and the food and drugs department had driven out the extravagant advertisements and promises of cures that formerly featured many nostrums sold in the market. This concerted attack on worthless or harmless nostrums, he asserted, was one of the important developments of recent years.

Several other addresses were delivered and quite a number of papers were read. The following officers were elected: President, M. A. Stout, Bluffton; vice-presidents, W. H. Rudder, Salem, R. A. B. White, South Bend, and Wood Wiles, Bloomington; secretary, William F. Warner, Indianapolis; treasurer, Frank H. Carter, Indianapolis. Ernest Stahlhuth, Columbus, M. A. Stout, of Bluffton, and E. W. Stucky, were chosen members of the executive committee.

MAINE.

A history of the Maine Pharmaceutical Association was contributed by A. G. Schlotterbeck, of Portland, to the American Pharmaceutical Association and printed in the Journal for March, 1914. This year the Annual Convention was held in Augusta and was the 49th annual meeting of this Association which holds the record and priority of State Pharmaceutical Associations.

The meeting was largely attended and an interesting program was carried out. Professor Theodore J. Bradley, of Boston, was a visitor during the convention, and delivered an address. Professor D. T. Dougherty, of Bath, in his address, spoke of market conditions, and dwelt upon the need for coöperation in all things that pertain to pharmacy. With regard to legislation, he advised that no measure before the Legislature of Maine should be encouraged by druggists unless the same had been submitted to the Legislative Committee of the Association. He also declared that the stock of drugs and preparations carried by physicians in their offices who dispense them, should come under the supervision of the drug inspector. He favored the Stephens Bill, and advised that the members should keep in touch with National Legislation.

Reports of Dr. M. L. Porter, Secretary, and A. W. Meserve showed that the present membership was 338 and the financial status of the Association good.

The following officers were elected: President, F. W. Buckman, of Skowhegan; first vice-president, H. C. Buxton, of Fort Fairfield; second vice-president, F. H. Neal, of Fairfield; third vice-president, E. F. Carswell, of Gorham; treasurer, A. W. Meserve, of Kennebunk; secretary, M. L. Porter, of Danforth.

The following were elected delegates to attend the meeting of the American Pharmaceutical Association in September, at Atlantic City, N. J.: Dr. M. L. Porter, of Danforth, secretary; D. T. Dougherty, of Bath, the retiring president; and F. W. Buckman, of Skowhegan, the newly elected president.

It was voted to recommend to the Governor the following men as candidates for commissioner of pharmacy: J. A. Broe, of Portland, George O. Tuttle, of Portland, E. F. Carswell, of Gorham, C. H. Beane, of Gardiner, A. W. Meserve, of Kennebunk and O. W. Jones, of Auburn.

MARYLAND.

A large attendance was present at the annual convention of Maryland Pharmaceutical Association at Braddock Heights.

President Bunting reviewed the work of the Association and spoke of the legislative activities in Maryland. It was reported that there was more or less inattention paid to proper registration of poisons by other dealers than druggists. The work of the Procter Memorial Committee of the American Pharmaceutical Association was endorsed. Chairman John F. Hancock was unable to be present for the first time in many years and was missed from the convention.

The following officers were elected: President, J. D. Stotlemeyer, Hancock; first vice-president, Eugene W. Hodson, Baltimore; second vice-presidents, C. K. Stotlemeyer, Hancock; secretary, E. F. Kelly, of the Department of Pharmacy, University of Maryland, who has held the same position for a number of years; treasurer, Samuel Y. Harris, Baltimore. New members of the executive committee: A. L. Pearre, Frederick; Charles L. Meyer, Baltimore, and George A. Bunting, Baltimore, and W. H. Clark, Pocomoke City.

MASSACHUSETTS.

The Massachusetts State Pharmaceutical Association convened at Swampscott, June 20 to 22. The Stephens Bill received hearty endorsement and some of the Massachusetts Congressmen were charged with being indifferent regarding this important measure. An appropriation was made for continuing the work of the Legislative Committee.

The scholarship in the Massachusetts College of Pharmacy was continued and the Association reaffiliated with the National Association of Retail Druggists.

J. M. Keliher, of New Bedford; L. C. Ellis, of Lynn; and W. H. Glover, of Lawrence, were recommended for appointment on the State Board of Pharmacy. Prof. Elie H. LaPierre was endorsed for appointment to the State Board of Trade, and Paul C. Klein, of Boston for appointment to the State Board of Health.

The following officers were elected: President, E. O. Engstrom, of Pittsfield; vice-presidents, W. S. Doane, of Worcester; C. J. Thompson, of Springfield, and C. C. Hearn, of Quincy; secretary, J. F. Guerin, of Worcester; treasurer, J. F. Finneran, of Boston; trustees of permanent fund, W. F. Sawyer, of Boston; F. E. Mole, of Adams, and J. W. Cooper, of Plymouth.

The Traveling Men's Association elected the following officers: President, J. H. Johnson, of Boston; vice-presidents, A. W. Jackson, of Boston, and W. H. Henderson, of Malden; secretary-treasurer, Albert Whitaker, of Chelsea; members of the executive committee, R. R. Patch, of Boston, and E. S. Rae, of Charlestown.

NEW HAMPSHIRE.

The forty-third annual meeting of the New Hampshire Pharmaceutical Association was opened at the Hotel Wentworth, Portsmouth, June 27.

In the afternoon a business meeting was held with an address by President Porter, followed by readings of the reports of the officers and committees and the admission of new members. At 8 o'clock in the evening a card party was held and a vaudeville entertainment put on by the Traveling Men's Auxiliary.

The convention concluded Wednesday evening with a ball. The officers elected for the ensuing year are as follows: President, S. S. Lightbody, Rochester; first vice-president, W. H. Brown, Pittsfield; second vice-president, W. G. McCullins, Bristol; secretary, Eugene Sullivan; treasurer, S. H. Bell, Derry; auditor, J. H. Marshall, Manchester.

Members of the Executive Committee: Goodwin E. Philbrick, Portsmouth; P. H. Boire, Manchester; Eugene Sullivan, Concord.

NORTH CAROLINA.

The thirty-seventh annual convention of the North Carolina Pharmaceutical Association was held at Wrightsville Beach. There was a large attendance and fifty new members were added.

President E. L. Tarkenton in his annual address recommended the Association to go on record as encouraging the growing of medicinal drug plants, and that the membership be strengthened by sending out a delegate over the State three times a year to solicit members and collect dues. He advocated a law which would prohibit the dispensing of drugs by any but registered pharmacists and particularly censured dispensing doctors. He was also severe in discountenancing fountain luncheonettes, counter prescribing, substitution, druggists' names appearing in patent medicine advertisements, and the filling of prescriptions by unregistered clerks. He recommended that drug stores be kept open certain hours on Sunday for filling prescriptions and the sale of medicine, but not for selling drinks, tobacco, etc. Ownership of drug stores should be restricted to certified pharmacists; the pharmacy law should be rigidly enforced; certificates should not be given to clerks who had only soda fountain experience; closer relationship should exist between the Association and pharmacists of the State and the University School of Pharmacy. The Carolina Journal of Pharmacy should be made the official organ of the Association and druggists should faithfully follow out the provisions of the Harrison narcotic law. The readoption of last year's resolution indorsing the Stevens bill was also urged.

Prof. Henry P. Hynson, of Baltimore, was present as a guest of the Association, and delivered an address largely devoted to advertising, not altogether in the papers but by conduct in and about the store. He also conducted a "prescription clinic," and later, was elected an honorary member of the Association. Quite a number of interesting papers were read.

The following officers were elected: President, E. G. Birdsong, Raleigh; first vice-president, G. A. Matton, High Point; second vice-president, S. E. Welfare, Winston-Salem; third vice-president, G. R. Pilkington, Pittsboro; secretary, J. G. Beard (re-elected), Chapel Hill; treasurer (re-elected), Charlotte; member of the board of pharmacy, E. V. Zoeller (re-elected), Tarboro; local secretary, C. A. Raysor, Asheville.

The next annual meeting will be held in June, 1917, at Asheville.

OHIO.

The thirty-eighth annual meeting of the Ohio Pharmaceutical Association was held at Cedar Point, July 11–13.

President J. F. Gallagher presented a studied address in which he brought out legislative necessities, the value of wider publicity and correct information anent the drug business for the public. Concurring in the views of the president the Association adopted the following declaration: "We ask that each druggist support for election or re-election legislators who will be, or have been, of aid to us. Too much attention cannot be given to this form of politics." A session during the meeting of the State Legislature will be called.

There was considerable discussion of the draft of a model pharmacy law, presented by F. H. Freericks, Esq., of Cincinnati, who has been getting suggestions for a draft, as a representative of the American Pharmaceutical Association.

Secretary T. H. Potts presented an enlightening résumé of the national legislative situation. Governor Willis of Ohio was a visitor and briefly addressed the Association. Professor Kauffman was presented with a handsome chimes clock.

The Association elected the following officers: President, E. R. Selzer, of Cleveland; vice-presidents, G. B. Topping, of Columbus, and J. W. Dysle, of Marietta; secretary, T. D. Wetterstroem, of Cincinnati (re-elected); treasurer, L. W. Funk, of Columbus (re-elected); and member of the council for five years, J. F. Gallaher, of Dayton.

Otto Katz, of Cincinnati, and C. W. Hildebolt, of Germantown, were selected as delegates to represent the Association at the Indianapolis meeting of the National Association of Retail Druggists. As its delegates to the Atlantic City meeting of the American Pharmaceutical Association, the Association selected E. H. Thiesing, of Cincinnati; W. M. Bowman, of Toledo, and Dr. W. C. Alpers, of Cleveland.

OREGON.

The twenty-seventh annual meeting of Oregon Pharmaceutical Association was held at Seaside, July 11–14.

President F. A. Nichols in his address spoke for coöperation and friendship among druggists; the interests of the Association were those of the individual member. He advocated more interest in legislative matters, and was deeply concerned in preventing liquor selling in the drug store. He favored a price maintenance measure. The president's recommendations were adopted. The subject of closing drug stores on Sunday came up for considerable discussion, and the decision reached was that a necessity existed for drug stores keeping open on Sunday.

The officers elected for the ensuing year are: President, D. J. Fry, of Salem; vice-presidents, W. H. McNair, of Ashland, and H. F. Brandon, of Portland; secretary, A. W. Allen, of Portland, and treasurer, B. F. Jones, of Portland.

TENNESSEE.

The thirty-first annual meeting of the Tennessee Pharmaceutical Association was held at Monteagle, July 11–13.

Reference to the meeting has been made under the reports of Local Branches. Delegates were appointed to attend the meeting of the American Pharmaceutical Association and of the National Association of Retail Druggists.

The following officers were elected: President, D. J. Kuhn, of Nashville; vice-presidents, Harry Mayer, of Memphis, John J. Ingle, of South Pittsburgh, and H. E. Mason, of Smithville; secretary, T. J. Shannon, of Sharon, and treasurer, B. J. Sand, of Nashville.

It was decided that the meeting next year should be held at Memphis in conjunction with the State Associations of Arkansas and Mississippi.

UTAH.

The sixteenth annual convention of the Utah Pharmaceutical Association was held at Logan.

A number of addresses were delivered dealing with good business management and salesmanship. G. Coulson Smith, investigating agent of the state board of pharmacy, and the state medical examiners, read an interesting paper on the peyote curse among the Indians of eastern Utah, detailing the effects of the narcotic and the demoralization it causes, and as a result the Association will prepare a bill placing peyote in the list of forbidden and habit-forming drugs.

The election of officers resulted as follows: President, Walter H. Dayton, Salt Lake; first vice-president, H. H. Peterson, Richfield; second vice-president, J. L. Boyden, Coalville; secretary, Frank Folland, Salt Lake; treasurer, William Swinyard, Logan; directors, John Culley, Ogden; A. L. Eddy, Brigham City; R. S. McAllister, Logan; Edward Johnson, Mt. Pleasant; A. H. Stevens, Provo; A. Bevan, Tooele.

The next meeting of the Association will be held in Salt Lake City.

VERMONT.

The twenty-third annual meeting of the Vermont Pharmaceutical Association was held at St. Albans, June 27.

President F. R. Barker in his address reviewed the condition of the drug business, and in an interesting way gave a history of its progress from the staid condition of the past to the more commercial methods of the present. He spoke for loyalty and service in the Association. The Association now has a membership of 300.

The following officers were elected: President, D. G. Quebes, of Rutland; vice-president, O. B. Wells, of Burlington; secretary, and treasurer, Percy F. Bearse, of Brandon.

VIRGINIA.

The thirty-fifth annual meeting of Virginia Pharmaceutical Association was held at Staunton, July 11–13.

The effects of the Virginia prohibition laws on the drug business received consideration, resulting in the appointment of a committee to confer with Commissioner Sidney J. Peters regarding the matter, so druggists may have a thorough understanding as to how the law applies to the retail druggist.

Secretary T. A. Miller resigned from the Board of Pharmacy some time ago, and the names of J. W. Williamson, T. Ramsey Taylor, W. T. Reeves, G. M. Farrar and H. S. Eley are to be submitted to the Governor, from which number he will appoint one as member of the Board.

It was decided to begin the publication of a journal devoted to the welfare of the Association, and the following editors-in-chief were appointed: A. Bolenbaugh, E. L. Brandis and W. F. Rudd, to be assisted by a number of associate editors. The name of the journal will be the *Virginia Pharmacist.*

The following officers were elected for the ensuing year: President, T. Ramsey Taylor, of Norfolk; vice-presidents, C. H. Goldsboro, of Culpeper, and G. E. Thomson, of Chatham; secretary, E. L. Brandis, of Richmond; treasurer, H. S. Eley, of Suffolk; and local secretary, J. Y. McRae, of Norfolk.

The meeting next year is to be held at Old Point Comfort.

WASHINGTON.

A striking feature of the twenty-seventh annual meeting of the Washington State Pharmaceutical Association was the meeting place, namely on board the steamship *Governor* on a tour of Puget Sound, and while this may indicate amusement rather than work, the proceedings prove otherwise. The convention dates were June 19–22.

President C. W. Johnson in his address deplored the fact that large quantities of liquor were sold in drug stores on account of the Prohibition Law, and he sought to have the Association provide legislation which would exclude such sales, with the exception of alcohol. The Association went on record with the resolution requesting the officials to strictly enforce the present law. On vote it was decided, however, to secure the opinion of all the members on this subject. President Johnson further asked for a resolution calling upon the Secretary of State to endeavor to negotiate an agreement between the belligerent nations to allow the passage through the blockade of medicinal chemicals, and this met with the favor of the Association. He endorsed the work of pharmaceutical teaching in high schools, but simply as a stepping-stone to further pharmaceutical education. Dr. Johnson commented on the successful work of the Association and spoke of hearty coöperation with the American Pharmaceutical Association and the National Association of Retail Druggists.

Secretary Garrison of the State Board of Pharmacy presented the annual report which evidenced great activity and very satisfactory conditions.

Secretary A. W. Linton of the Association reported on the financial status and membership of that body, showing that there were nearly 200 members and the treasury in a satisfactory condition.

In the discussion of the president's address, which was referred to a committee, it was brought out from the records of King County that 42,601 gallons of whiskey were bought under druggists' permits since the Prohibition Law became effective. This does not include other liquors.

Secretary Garrison pointed out that if the courses in pharmacy in high schools would permit the candidates to come before the Board for assistant pharmacists' examination, they would thereafter be entitled to take the examination for full registration.

A large number of interesting papers were presented. One by Wm. Maske, Jr., on "Ointments Prepared by the Use of Volatile Solvents," showed that ointments of that character wherein chemicals were incorporated by a solution, the substance in the ointment crystallized out, and this makes such methods objectionable.

There were a number of papers on drug plant cultivation, and a history of Washington State Pharmaceutical Association was presented by W. P. Bonney, of Tacoma. A display of drug plants and an herbarium collection were on exhibition. Many of these drug plants were from the botanical garden of the College of Pharmacy, University of Washington.

The following names were presented for vacancies that might occur on the State Board of Pharmacy: H. G. Duerfeldt, Spokane; George D. Prigmore, Chehalis; Dr. C. W. Johnson, Seattle; Mrs. Emily McRae, Spokane; V. T. McCroskey, Colfax.

The following officers were elected: President, Dr. C. W. Johnson, Seattle; first vice-president, Henry G. Duerfeldt, Spokane; second vice-president, W. S. Kinsel, Seattle; secretary, A. W. Linton, Seattle; treasurer, F. D. Marr, Tacoma; executive committee, D. B. Garrison, Connell, Wash.; M. A. Weed, Seattle; W. S. Kinsel, Seattle; Cornelius Osseward, Seattle; Henry G. Duerfeldt, Spokane; G. C. Norton, Tacoma; J. Lough, Seattle; L. F. Swift, Seattle; G. R. Fetterman, Bremerton.

The proceedings of this Association were printed and sent out to the members very soon after the meeting.

WEST VIRGINIA.

The tenth annual meeting of West Virginia Pharmaceutical Association was held at Deer Park, Md.

President B. E. Downs in his address favored the restriction of drug sales to druggists and the exclusion of the peddler. He spoke against counter prescribing and praised the Committee on Education for their work in behalf of the pharmacy department of the State University.

The finances of the Association were reported in good shape. Quite a number of papers were read. Dr. J. H. Beal was present as guest of the Association and delivered an address on "The Necessity of Organization."

The following officers were elected: President, C. A. Neptune, of Parkersburg; vice-presidents, Stephen Tierne, Weston; J. Charles Hall, Charleston; B. J. Farrell, Clarksburg; treasurer, Chatham Sinclair, Wheeling; secretary, C. H. Rogers, Morgantown; member executive council, Gay Dent, Morgantown.

Deer Park, Md., was selected for the next meeting place.

WISCONSIN.

The thirty-eighth annual convention of the Wisconsin Pharmaceutical Association was held in Wausau, July 18–21.

President Kremer, in his address, told of the work of the Association and made several recommendations. He highly commended the Stephens Price Maintenance Bill and the work of the State Dairy and Food Commission. Mr. Kremer recommended stricter educational tests for Wisconsin.

George J. Weigle, state dairy and food inspector, told what his department has accomplished relative to correct weights and measures. He further said that druggists should be under state control and licensed. The profession would then be standardized and the undesirable druggists who violate laws could be put out of business.

The Association decided to petition the Board of Regents of the University of Wisconsin to make the School of Pharmacy a separate institution with its own professors.

.The officers elected are: President, J. J. Possehl, Milwaukee; first vice-president, Bert Schwanberg, Wausau; second vice-president, F. W. Mueller, Oshkosh; third vice-president, A. C. Otto, Grand Rapids; secretary, E. C. Raeuber, Milwaukee; treasurer, L. G. J. Mack, Milwaukee.

The names of H. G. Rùenzel, Milwaukee; F. Wieckman, Wausau, and George H. Kesten, Milwaukee, were recommended to Gov. E. L. Philipp for selection to the Board of Pharmacy when the next vacancy occurs.

The next annual meeting will be held in Milwaukee.

THE PHARMACIST AND THE LAW

AMERICAN LAW CRAZE.

Edward Trefz, field secretary for the Chamber of Commerce of the United States, recently said that "during the last ten years the British Parliament had passed only 1500 laws. During the last five years Congress and State Legislatures have passed 62,550 laws, forgetful that God has made a very fair success out of this universe with only ten laws."

REVENUE BILL PASSES THE HOUSE BUT STILL UNDER CONSIDERATION BY THE SENATE.

The Administration's Revenue Bill passed the House July 10, but so many amendments have been suggested in the Senate, that at this writing a vote has not been taken. The measure eliminates the stamp taxes.

PROTECTION FOR COAL-TAR MEDICINALS FAVORED BY SENATE SUB-COMMITTEE.

The Sub-committee on Finance of the Senate seems to favor that medicinal products made from coal tar should receive the same consideration in the matter of protection under the new revenue bill as the aniline dyestuffs industry, also depending upon coal tar. The sub-committee let it be understood that they considered both industries equally on a parity in their claims for protection.

PUBLIC WARNED AGAINST FRAUDULENT INFANTILE PARALYSIS CURES.

Officials charged with the enforcement of the Food and Drugs Act have warned the public that any preparation offered for sale as a treatment for infantile paralysis should be looked upon with extreme suspicion. Inspectors, accordingly, have been instructed to regard as suspicious, and to collect samples of all medicines in interstate commerce for which such claims are made. Makers of such fraudulent remedies will be vigorously prosecuted whenever the evidence warrants action under the Sherley amendment to the Food and Drugs Act. So-called remedies for infantile paralysis which are offered for import into the country will be denied entry.

THE STEPHENS BILL SITUATION.

It is clearly evident that consideration of the uniform price maintenance measures will go over until Congress reconvenes this fall. This seems also to be the opinion of the American Fair Trade League at this time.

SYNTHETIC SUBSTITUTES UNDER THE HARRISON LAW.

Under a ruling of the Treasury Department that any synthetic substitute for cocaine was taxable under the Harrison act, the Farbwerke-Hoechst Company paid, under protest, to the Collector of Internal Revenue, the tax required by the act and then brought an action for recovery to demonstrate that novocain, holocain, orthoform and anæsthesin were not derivatives of coca leaves or opium, and that they contained no cocaine and no habit-forming drugs.

The case was tried for two days before Judge Grubb and a jury, during which the Farbwerke-Hoechst Company called notable chemists, surgeons, dentists and pharmacologists, who testified to the chemistry and non-habit-forming qualities of novocain.

There was no contradiction of the medical, chemical or dental testimony as to the non-habit-forming qualities of novocain and as to its chemical dissimilarity from opium, coca leaves and their derivatives.

The court took the case from the jury and ordered a verdict for the Farbwerke-Hoechst Company, on the ground that the text of the law did not include synthetic substitutes except in Section IV, where it was without force so far as the general construction of the law is concerned.

CALIFORNIA BOARD OF PHARMACY ACTIVE IN EFFORT TO CONTROL NARCOTIC SALES.

In a number of letters to officials of the Government the California Board of Pharmacy has pointed out that sales were being made by smuggling, and on physicians' orders without respect for the law. For example, prescribing several ounces of morphine for one person and the writing of 156 prescriptions for narcotics by one physician during a short period of time.

The Board recommends the removal of Harrison Law privileges from those who follow such practices, and with regard to limitations of amounts to be prescribed they make these recommendations: First: Those who are habitual users, limit the amount of morphine to five grains, cocaine two grains, heroin, two grains, that the physician may prescribe daily during the treatment, specify the length of time it should last and at the end of thirty days of such treatment must show a complete cure, otherwise the treatment will not be considered in good faith.

Second: Those persons afflicted with an incurable disease: The physician should not be restricted to the amount prescribed but should be required to state the nature of the disease or ailment upon the prescription and make a report to the Federal or State Departments having jurisdiction. These should be subject to thorough investigation.

WAR DEPARTMENT

List of changes of stations during July, 1916, in the cases of Sergeants First Class and Sergeants, Medical Department.

SERGEANTS FIRST CLASS.

John E. Oberg, from Ft. Worden, to the Southern Department for assignment.

SERGEANTS.

The following named sergeants were sent to the Southern Department for assignment to station:

Leo J. Miller, from Ft. Leavenworth.

Fritz J. Sheffler, from Army Medical School, Washington, D. C.

Patrick F. O'Donnell, from Ft. Mott.

David Perkins, from Ft. Michie.

Carl H. Hoffmeyer, from the U. S. Disciplinary Barracks, Leavenworth.

James W. Wilkie, from West Point, N. Y.

Richard H. Bledsoe, from the U. S. Disciplinary Barracks, Alcatraz, Cal.

Wm. D. Cherry, from the U. S. Disciplinary Barracks, Alcatraz, Cal.

William M. Anderson, from the U. S. Disciplinary Barracks, Alcatraz, Cal.

John W. Keenan, from Ft. Adams.

Jacob O. Christman, from the Army General Hospital, Ft. Bayard.

Frank Pospishil, from the Army General Hospital, Ft. Bayard.

Andrew E. Hartwell, from Plattsburg Barracks, N. Y.

Luther Brazier, from Ft. Monroe.

Frederick C. Miller, from Ft. Caswell.

Wm. E. Fletcher, from the Letterman General Hospital, Cal.

John M. Toppins, from the Letterman General Hospital, Cal.

Carl M. Shatzer, from the Letterman General Hospital, Cal.

Burt Youngs, from the Letterman General Hospital, Cal.

Burton L. Williams, from the Letterman General Hospital, Cal.

Ernest Arias, from the Letterman General Hospital, Cal.

John R. Flynn, from the Letterman General Hospital, Cal.

Ralph P. Dolby, from Ft. Worden.

John R. Lommell, from Ft. Lawton.

Wm. C. Below, from Ft. George Wright.

UNITED STATES PUBLIC HEALTH SERVICE.

Pharmacist John H. Hayes. Relieved at Marine Hospital, Wilmington, N. C., and proceed to New York for duty in connection with the studies of poliomyelitis.

July 15, 1916.

CHANGES OF ADDRESS

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESS SINCE JUNE 18, 1916.

BRACONIER, F. G.,
From 32 Churchill Ave., Campello, Mass.
To 1145 Main St., Campello, Mass.

JENSEN, C. A. B.,
From 333 S. Montana St., Butte, Mont.
To Residence unknown.

ROGOFF, J. M.,
From Medical Dept., Vanderbilt University, Nashville, Tenn.
To Residence unknown.

POWELL, M.,
From Klemme, Iowa.
To Residence unknown.

MAHONEY, W. A.,
From Cocoa, Fla.
To No. 3 Lauderdale Apt., Jacksonville, Fla.

SCHULZ, EMIEL,
From Regt. Hosp., 6th Cavalry, Columbus, N. Mex.
To Regt. Hosp., 6th Cavalry, Marfa, Texas.

STUART, H. A.,
From 3321 Third Ave., South Minneapolis, Minn.
To 126 E. Lake St., Minneapolis, Minn.

BUEHLER, C. T.,
From Residence unknown.
To Cole Camp, Mo.

MILLER, C. E.,
From Navy Yard Dispensary, Norfolk, Va.
To Albion, Indiana.

SEIDMAN, HARRY,
From 627 N. 2nd St., Philadelphia, Pa.
To S. E. Cor. Franklin and Columbia Aves., Philadelphia, Pa.

BLOME, W. H.,
From 426 Baldwin Ave., Detroit, Mich.
To 4 N. Baldwin Ave., Detroit, Mich.

BRIGGS, A. E.,
From 301 Clements St., San Francisco, Cal.

GOODRICH, J.,
From 6307 Brooklyn Ave., Seattle, Wash.
To 203 Bagley Hall, University of Washington, Seattle, Wash.

TRIMBACH, A. R.,
From 23 Aberdeen St., Suite 2, Boston, Mass.
To 158 Horton St., Lewiston, Me.

HOLTHOEFER, H. J.,
From 5030 Prairie Ave., Chicago, Ill.
To 3300 State St., Chicago, Ill.

BOOK NOTICES

The Pharmacopœia of the United States of America. Ninth Decennial Revision. By authority of the United States Pharmacopœial Convention held at Washington, D. C., May 10, 1916. Prepared by the Committee of Revision and published by the Board of Trustees. Official from September 1, 1916. 8vo., 728 pages, Philadelphia, Agents, P. Blakiston's Son & Co.

Elsewhere a review and editorial mention will be found of the United States Pharmacopœia, Ninth Revision, so it is not necessary here to go into a review of this authority. Aside from the improvements which have been made in the text and the new chapters which have been added, the excellent mechanical work is deserving of commendation. The printing was done by J. B. Lippincott Company, of Philadelphia.

Copies of the Pharmacopœia will be obtainable by the time this JOURNAL reaches the readers.

The prices fixed for the Pharmacopœia are: Bound in cloth, $3; buckram, $3.25; sheep,

$3.50, and flexible leather, interleaved, $4.50. Pharmacists will likely make their purchase through wholesale druggists.

The National Formulary. Fourth Edition. By authority of the American Pharmaceutical Association. Prepared by the Committee on National Formulary of the A. Ph. A. Official from September 1, 1916. 8vo., 394 pages. Published by the American Pharmaceutical Association.

The remarks made relative to extended reference in these columns of the U.S.P. IX applies also to the National Formulary, Fourth Edition.

The improvements made in this revision are so decided that they will attract the favorable attention of all who make use of this valuable Formulary, which now is far more than that, as it lays down standards and provides the pharmacist with tests and much useful information.

The mechanical part of the work has been done with great care, the typography is particularly clear and readable. J. B. Lippincott Company are the printers and binders; the Midland Publishing Company, Columbus, Ohio, has been appointed general sales agent with the following sub-agents: The Baker-Taylor Company, New York City; The Chicago Medical Book Company, Chicago; L. S. Mathews Company, St. Louis, Mo.; The Pacific Drug Review, San Francisco and Portland. Wholesale druggists will supply the book.

The prices of the National Formulary in the various bindings are as follows: Muslin, plain, $2.50; Buckram, plain, $2.75; Buckram, interleaved, $4.00. They are now on sale.

Poisons and Habit-Forming Drugs. A digest of laws and regulations relating to the possession, use, sale, and manufacture of poisons and habit-forming drugs, enacted during 1914 and 1915, now in force in the United States. By Martin I. Wilbert, Technical Assistant, Hygienic Laboratory, United States Public Health Service.

The number of this reprint is 330, and may be obtained from the Government Printing Office for 20 cents. This publication is a valuable and convenient reference book of all narcotic and poison laws and therefore of particular interest to all branches of the drug trade.

Besides the laws and regulations there is much instructive commentary matter, and a very complete index to subjects is included.

AMERICAN TRAINING FOR FRENCH COMMERCIAL STUDENTS.*

It is generally recognized in both France and the United States that one of the greatest needs, in the development of foreign trade, is that of providing commercial education which not only shall be sound pedagogically, but in which emphasis shall be placed upon practical usefulness. With a view to discussing, in a preliminary way, the possibility of devising a practicable scheme for the interchange of students of commerce between France and the United States, I last week called a meeting of persons (both Frenchmen and Americans) interested in the subject of commercial education. Among those present were the Paris representatives of some of the largest exporting and importing firms of the United States and the representatives of several French organizations of manufacturers and merchants and of the University of Paris and other educational institutions.

It was suggested at the conference that, while the two countries now exchange professors, possibly greater benefits would accrue from an exchange of students who intend to make foreign trade their career. A committee representing both countries was appointed to draw up a tentative plan; and this committee desires most earnestly to be placed in touch with American manufacturers or dealers actively interested in this question, and especially with trade organizations likely to give serious attention to the general subject of training young men along practical lines in connection with the promotion of foreign trade. For the present the chairman of the committee is the Commercial Attaché of the United States (address: 36 Avenue de l'Opera) at Paris.

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* Commercial Attaché C. W. A. Veditz, Paris, France, July 14, in *Commerce Reports.*

TYPOGRAPHY AND ORTHOGRAPHY IN THE JOURNAL, WITH A FEW SUGGESTIONS FOR AUTHORS.

In presenting the following data the contention is, that not all errors in the pages of printed literature are chargeable to the authors, the printer or even the editor. The purpose then is not for criticism or pointing out deficiencies, but to be helpful. Everyone will admit the lack of uniformity of style in magazines. While no pretentions are made that this study will eliminate all imperfections in this JOURNAL, there should follow a degree of improvement which will make the compilation worth the time and space given to the presentation. It is the intention, from time to time, to continue this theme, and both constructive criticism and suggestions are invited from members, authors and the pharmaceutical press. The first article will deal with many subjects and hence be more or less superficial; this has largely been arranged for our own convenient reference in marking copy.—The Editor.

Originality and accuracy are high qualities of acceptable papers. Simplicity of style and brevity assure more readers for an author than an unnecessarily long contribution, written in obscure style. The thoughts and conclusions of an author should be explicitly presented, for he cannot follow his messages into the homes of the readers.

The name of the author of a paper should be written as he desires to have it appear in print. Special attention should be given to the spelling of proper names.

The article should preferably be typewritten, double space between lines, a wide margin along both sides of the writing. An abstract may be sent with the contribution. When written for one of the Sections of the American Pharmaceutical Association, an abstract should invariably accompany the paper. Another recommendation is to complete the paper with the expressed conclusions of the author, or a summary. The aim of writing is to give information and everything that contributes thereto enhances the value of the effort.

Credit for previous printing of an article or information as to its reading or presentation should be given in a footnote, the cross reference for which should be * following the title. All other footnotes should be numbered consecutively throughout the article, beginning with one. When a number of references are supplied they should be placed at the end of the article under the head "References," or "Bibliography."

If the article has been printed before, credit should be given to the periodicals in which it originally or subsequently appeared. The volume number of all periodicals should be expressed in Roman numerals. A uniform system of abbreviation for publications should be followed. (We are now preparing a list and this will appear in a succeeding issue.) The names of all periodicals should be in italics, except the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, which should always be in caps. and small caps.

A drawing may be used where it will serve to make clearer the author's meaning or will replace a long explanation. For such drawing India ink should be used. The submitted drawing should be at least one and one-half times as large as the reproduction. Tables should be avoided when it is possible to give the same information, in less space, in the text.

Within certain limitations the simplified spelling of words is preferred, as *e* for *æ* in such words as anesthesia, hemorrhage; *e* for *œ*, as in esophagus; *er* not *re*, as in meter, center; role not rôle; distil, not distill; fluidrachm, not fluiddrachm, but whiskey, not whisky, in conformity with the Government spelling of the word. English plurals should be used, as formulas, not formulæ. The orthography of the U. S. Pharmacopœia and National Formulary should be followed.

All words, phrases and sentences in foreign languages should be in italics. Names of new compounds should be spelled out in full and underscored (underscoring indicates italics). When letters are used as mathematical symbols they should be in italics.

Weights and measures should be expressed in terms of the metric system, whenever practicable. All periods of time should be spelled out, so as to be readily distinguished from weights or measures, which should be expressed in numerals. A sentence should not commence with Arabic numerals. Do not use an apostrophe after the word apothecaries when writing apothecaries weight or measure.

All temperature should be expressed in the Centigrade scale, and if no scale is mentioned Centigrade degrees will be understood. Do not spell out the word degree, but use the symbol, °.

The terms mil and mils should be used, so far as practicable, instead of cubic centimeter or the abbreviation Cc. Chemists will likely continue to employ the latter and, therefore, unless it be in pharmaceutical formulas, no change, from the one term to the other, will be made. A few abbreviations are here given that appear in articles of the JOURNAL:

Cc.	cubic centimeter.
cm.	centimeter.
Gm.	gramme and grammes.
Kg.	kilogramme.
M.	meter.
L.	liter.
$\frac{N}{1}$	normal solution.
$\frac{N}{50}$	fiftieth-normal solution.
sp. gr.	specific gravity.
$[a]_D$	specific rotation.
Kw.	kilowatt.

All Latin titles of preparations should be capitalized, but English titles, lower case, except when the official preparation is specifically referred to, and also in discussions of preparations, when the title is of prime importance, as, for instance, in articles now appearing on the Pharmacopœia and National Formulary. Synonyms are not capitalized.

Excepting in cases where the words president, secretary, etc., are used as part of a name or instead of a full name, they should be in lower case, as President John Jones called the meeting to order; the President delivered an address; but the following officers were elected: John Jones, president; William Brown, vice-president, etc. Names of special committees should be capitalized.

When the word association is written instead of the full title and refers to a particular body, it should be capitalized; so also pharmacopœia, when implying a reference to that of a certain country. Capitalize the names of all college and university degrees, as Master of Pharmacy. Words like state, south, etc., are capitalized only when they are substituted for the name of a particular state or section under discussion. When such words as bill, law, etc., form part of the name, they should be capitalized, as Harrison Law, Stephens-Ashurst Bill. We realize that most publications set law and bill in lower case, but the application of such rule would, in our opinion, put down pharmacopœia, when preceded by United States, capitalizing United States only. The modern idea is to print in lower case whenever possible and whenever there is doubt. This, beyond question, makes for a better appearing printed page, but we prefer not to go to the extreme of such practice.

Chemical symbols should not be used for abbreviating purposes solely, in the text, but may be given when the purpose, for example, is to indicate content of the element or elements in a formula or compound, as, Syrup Ferrous Iodide should contain not less than 4.75 percent nor more than 5.25 percent of FeI_2. If the symbol of a chemical compound has to be separated at the end of a line, a hyphen should never be used to show the break, as it is apt to be understood as a dash. Endeavor not to split a chemical symbol.

Except when an official name supplies the authority, hydroxyl derivatives of hydrocarbons should end in *ol,* as resorcinol; glycerin, official designation, may also be given glycerol. Benzene and toluene are preferable to benzol and toluol. The term hydroxide should be used for a compound with OH and hydrate for one with H_2O; pharmacopœial authority will, however, change the application in some instances.

The ending *ine* should be used for basic substances *only* (distinction for alkaloids); *in* for glycerides, glucosides, bitter principles, proteins, etc.; thus, atropine and aniline; gelatin, ouabin, cornin and albumin. In translations it should be remembered that the French use *ine* for both basic and neutral substances, while the Germans employ *in* for the same designations. German names of hydrocarbons and ending in *an* should be translated *ane.*

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, $4.00; Canada, $4.35; foreign countries, $4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

Requests for Back and Missing Numbers: Requests for back and missing numbers should be sent to the Editor. Claims will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from date of issue. Notice of change of address should give old and new address.

Contributions: The JOURNAL accepts no responsibility for the opinion of its contributors. Contributions should be sent to the Editor; use only one side of the sheet for writing, and double-space the lines. Articles are accepted for publication on condition that they are contributed solely to this JOURNAL; and "all papers presented to the Association and its Branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by consent of the Committee on Publication." (By-Laws, Chapter X, Article 11.)

Reprints: Authors may obtain reprints of the J. B. Lippincott Company, Philadelphia, Pa., at the prices attached to the proof sent them, provided the order is received before the type has been distributed. The prices are also given on this page.

Advertisements: Communications relating to advertising should be sent to the Editor. Forms close on the first of each month, and copy should be in by the fifteenth of the month preceding date of issue, to receive proof. Date of issue—the fifteenth of the month. Advertising rates sent on request.

Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the JOURNAL. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

Cost of Reprints: Reprints will be furnished at the following prices:

	No cover.	With cover
100 copies, 4 pages ..	$2.50	$4.50
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REQUEST FOR BACK NUMBERS OF THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

The American Pharmaceutical Association would be pleased to receive back numbers of the JOURNAL. There are some who have duplicate copies, and their consideration would supply the wants of others. The JOURNALS should be addressed to THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 253 Bourse Building, Philadelphia, Pa. Only the following numbers are desired:

1912	1914	1915	1916
April May	August September October	January	January February March April

ALBERT BROWN LYONS, A.M., M.D.
DETROIT, MICHIGAN
Honorary President of the American Pharmaceutical Association, 1913-1914
Chairman, Sub-committee on Tables, United States Pharmacopœia

ALBERT BROWN LYONS

JOURNAL OF THE
AMERICAN
PHARMACEUTICAL
ASSOCIATION

VOL. V SEPTEMBER, 1916 NO. 9

ALBERT BROWN LYONS, A.M., M.D.

To know Dr. Lyons slightly is to respect him, to know him moderately is to honor him, to know him intimately is to wonder at his versatility and the strength of his mind and character.

When the Pharmacopœia Revision Committee wanted a head for its Subcommittee on Tables, only Dr. Lyons was considered. There were no rivals for the position. This occurred on both of the last two revisions. When the National Formulary Committee sought help outside its own ranks in final judgment of the text, it obtained it plentifully from Dr. Lyons. How he can detect errors, time after time, which fifteen good men have overlooked, is a mystery, but he does it. And the American Pharmaceutical Association is profiting to-day because of the care and judgment of Dr. Lyons in the preparation of the N. F. IV, although he was not a member of the Committee. The book is very markedly better for his services.

This is one reason why the Editor is justified in portraying Dr. Lyons for the second time in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

On pages 1578 to 1581 of the second volume (1913) of the JOURNAL will be found a genealogical sketch of the man, written when he was Honorary President of the Association. At that time Dr. Lyons had been given up to await death, by several of Detroit's most eminent surgeons and physicians. Eight months before that sketch appeared he had been told that he could live only a year, and there was no mistake about the diagnosis. But he is still alive and working, though unable to attend the Association meetings. Each working day finds him at his desk, and his mind is as vigorous as ever. Only a magnificent courage, an unwavering fealty to the opportunities of life, and an undaunted calmness toward the future can account for his being alive. And pharmacy has profited no less in these three and a half years of trial than in a corresponding three and a half years of full vigor. No one expected that he would finish his work on the revision of the Pharmacopœia, and his assistance on the National Formulary was not dreamed of. But both have profited.

Pharmacy owes to Dr. Lyons the development of alkaloidal assaying in America. He was a pioneer in that subject and the author of the first work in English treating of it. The first standardized alkaloidal preparations placed upon the American market were established by Dr. Lyons.

For botanical nomenclature and synonyms Dr. H. H. Rusby accords to Dr. Lyons the highest authority in America. His judgment on botanical questions is rarely disputed.

His work on the Tables of the Pharmacopœia is less understood because these have not yet come into their normal use, but future generations will appreciate it more. This, too, is pioneer work in so far as making tables, useful in pharmaceutical work, is concerned.

But one does not think of him as a specialist. His breadth of mind and versatility are a continual wonder, and his judgment commands respect in all circles. He has won the highest honors his church can give, he is esteemed as a citizen and honored as a scientist. The British chemical and pharmaceutical societies have both recognized his abilities and have honored him. The American Pharmaceutical Association, in which he has done valuable work, is also glad to value him while he is still among us.

Wilbur L. Scoville.

WILLIAM C. ALPERS
Retiring President, A. Ph. A.

WILLIAM B. DAY
General Secretary, A. Ph. A.

EDITORIAL

E. G. EBERLE, Editor **253 Bourse Bldg., PHILADELPHIA**

THE 1916 ASSOCIATION MEETINGS.

THE American Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy convened in Philadelphia prior to the Sixty-fourth Annual Meeting of the American Pharmaceutical Association held in Atlantic City.

The Association of Pharmaceutical Faculties continued the work laid out for them during the past several years, relating largely to teaching and examination methods. An interesting report on the prerequisite of graduation from a school of pharmacy before the candidates are admissible to the examinations of boards of pharmacy was presented. This report seems to indicate that such laws have been helpful in providing better qualified dispensers, and have not created anticipated inconvenience by shortage of clerks. Salaries have not advanced in a ratio with other occupations, requiring a relative degree of experience and knowledge. This report should be helpful to legislative committees in states where prerequisite laws are contemplated, and reprints of the report may be had at cost of production, for distribution among druggists in the respective states.

The National Association of Boards of Pharmacy, in order to carry on more effective and efficient work, was compelled to raise the fees for membership and reciprocal registration. The advance made is not disproportionate with the benefits; if a candidate desires to be re-examined when going to another state, he has the privilege; if, however, he prefers to take advantage of reciprocity, the fee of $15.00 probably involves no more expense than would be incurred by taking an examination and without being subject to the worry connected therewith.

The Advisory Committee on Examination Questions which reports to both bodies continued their work, and this is gradually being shaped into a system that will be both helpful and valuable in determining the fitness of candidates.

The Sixty-fourth Annual Meeting of the American Pharmaceutical Association was expected to be the most largely attended convention of its history. However the prospects for a railroad strike and probably also the large number of cases of poliomyelitis reduced the attendance. About four hundred were registered, and on two days of the convention this number was largely increased by delegates of the New York Deutscher Apotheker Verein, who came to honor their fellow-member, President Dr. William C. Alpers, and Philadelphia pharmacists who came to attend the banquet given in honor of Professor Samuel P. Sadtler, who was recently elected Emeritus Professor of the Philadelphia College of Pharmacy, in which institution he taught for nearly forty years.

The accession of membership was larger than ever before in the history of the Association, nearly 450 new members being added during the year.

This meeting, as every preceding convention, evidenced the sincerity of purpose that prompts the members of this Association to advance the cause of pharmacy and their deep concern for efficient service in behalf of the medical profession and those who are served by the coöperation of physicians and pharmacists.

President William C. Alpers' address related largely to internal affairs of the Association and involved the looking up of references in past proceedings, which were not available in Atlantic City, and will require considerable time for proper consideration, therefore the committee to whom the address was referred made only a preliminary report and asked that further time be given for its completion.

The National Formulary was the subject of much discussion, the improvement made in the fourth edition being recognized by everyone. The American Pharmaceutical Association does not seek to utilize this publication as a money-making proposition, but as the research work of the Association is essential to its production, the National Formulary should not only bring in sufficient revenue to defray the immediate expenses of publication, but provide the means for further revisions.

Several hundred formulas of the A. Ph. A. Recipe Book have already been published in the JOURNAL, and others will follow. Assistance given to the committee will redound to the benefit of every pharmacist.

A supplementary report of the Treasurer on the finances of the Association will be found following the report of the first General Session.

Every Section had an abundance of work and every minute of their allotted time was industriously occupied. These proceedings will be published in the JOURNAL and afford instructive reading during the coming months.

Perhaps the interesting announcement should be made that in the presentation of Dr. J. U. Lloyd's paper the discovery of a colloidal alkaloid in ipecac was announced. This discovery was made possible by the separation with hydrous aluminum silicate and had escaped observation in other separatory methods. The name given to this alkaloid is *kryptonine* (the hidden thing), and the formula, according to Waldbott, is $C_{29}H_{40}N_2O_9$.

It may be emphasized that the programs of all the Sections were interesting throughout, and the conduct of the proceedings expedited so that there were no tiresome moments. The nearness to the publication day of the JOURNAL necessitates that further comments must be made in the succeeding issue.

E. G. E.

ORGANIZATIONS.

IN all organizations there are possible extremes, whether the affairs are conducted by a centralized governing body or an attempt is made to have the conduct directed by all members. The former method may lead to an over-centralization and in the interest of a few, while the latter almost invariably leads to disorganization, because there is no uniform policy.

A governing body is essential to all successful organizations, and the duty of the membership is plain, to see that the management subserves the interests of all and does not usurp powers beyond their authority. The fact that the centralized body directs the affairs, occasionally arouses prejudice that gains expression in such terms as "arbitrary," "autocratic," "bureaucratic," etc. In associations frequently, what is ascribed to arbitrary methods is simply a lack of information on the part of those who make the assertions; not from ulterior motives, perhaps, but because they have not followed the trend of the work carried forward by the governing body, and assume that there is undue usurpation of power by the latter.

To secure efficient service the association assigns duties and delegates authority, and those who are charged with conducting the association affairs must have a right to do their own thinking and planning. There is probably no live association in which there is not prevalent criticism, sufficient to keep the officials informed of their observant fellow-members. The officers have been selected from the body, because of their qualifications or peculiar fitness for the work or, there has been a misjudgment. While in the offices that are largely honorary there should be rotation, those requiring constant attention to the activities of the association should be more or less permanent, for in this way knowledge and experience are conserved and may be efficiently applied in the conduct of association affairs. Constructive criticism is helpful and is the spirit which should actuate all members. A working together, counciling together, building up—not destroying—are just as essential to the growth of an association as efficient officers. An association may be considered as a family or as a business, and the conduct, loyalty, deep concern, high appreciation, protection against outward and inward attack, even love and devotion of the members characterize the organization.

E. G. E.

There is no influence for pharmacy more potent and powerful in the accomplishment of good than that of the business and professional men unselfishly banded together for the purpose of promoting the general welfare of pharmacy and when the paramount thought is service.

SIXTY-FOURTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

ATLANTIC CITY, N. J., SEPTEMBER 5, 1916.

(Partial Report of the First General Session.)

The Convention was called to order by President Alpers at 11.20 A. M.

THE PRESIDENT: As president of the American Pharmaceutical Association I call the Sixty-fourth Annual Meeting to order. Following our usual custom, I first call on the Reverend Henry M. Mellen to invoke the aid and guidance of Deity in our present convention.

REV. HENRY MERLE MELLEN: Almighty God, our Gracious Heavenly Father, we are Thy servants. Thou hast made us heirs of all mysteries and secrets of this earth upon which we dwell, and Thou hast said, " go thou into my vineyard and I will give thee of the fruitage of the earth." We are gathered here at this time representing so many of the medical men of the world around about us, so many of the great natural resources which Thou hast hidden in the bowels of the earth, which thou shalt dig for and grub for, and bring them to the science of men that they may be healing among the nations. We thank Thee for this convention which comes in our State, and we pray for Thy blessing upon all its deliberations. We pray that from this gathering there may go forth greater knowledge and greater instruction and greater education, so that mankind may be served in the greatest sense, because of all that has taken place in this convention. We pray our Lord that Thou wilt remember Thy servants, President, Secretary and all the officers and all that convene in our city in this capacity at the present time. Bless their coming in and their going out. Bless them as they shall leave our city to go to their places of respective business. Bless them in their endeavor to bring healing to men and women. Bless them in their efforts to bring mysteries from the bosom of mother earth, and so bless them and bless them all that the knowledge of the Great God might cover the whole earth at least even as the waters cover the sea. We ask it for Thy name's sake. Amen.

THE PRESIDENT: The Local Secretary wishes to make an announcement before we proceed.

MR. HOLZHAUER: As Chairman of the Local Committee I welcome you all and we want you to enjoy yourselves every moment that you are here. You will find in the entertainment booklet a ticket for to-night for the President's Reception. This was arranged for the Hotel Chalfonte, but at the last moment, for reasons, circumstances beyond our control, we were compelled to change it and it will be held at the Hotel Traymore, not the Chalfonte, to-night at nine o'clock.

In the booklets you will find a ticket for the Steel Pier, this pier, which will admit you downstairs to the performances. One for the Steeplechase Pier, the one just adjoining to my left and one for Young's Pier, the Million Dollar Pier. The ticket for the Million Dollar Pier has been added, quite largely because a great many people would be interested in seeing the drawing of the pound net which takes place at Young's Pier twice a day, 11.30 in the morning and 4 o'clock in the afternoon, in which you may see fish of all kinds gathered together in those nets, possibly a shark. I don't know about that. Then on Thursday evening there will be a theatre party at the Apollo Theatre, and after the theatre there will be refreshments served at the Hotel Traymore. It will be necessary for you to exchange those theatre tickets that are in your books at the theatre for reserved seats, and you may do that at any time to suit your pleasure.

The Heinz Pier Company has sent an invitation to the Association to visit their pier, which is in the direction of the Inlet, and they offer their reading rooms and their rest rooms there for the use of the society free.

To-morrow noon, at 1 o'clock, there will be a ladies' luncheon given at the Breakers, which is in this direction. That will be in charge of the ladies of New Jersey who will attend to that, and they hope for the attendance of every lady visitor.

You undoubtedly will find that there have been some mistakes made by your Local Secretary and your Local Committee. I have no doubt you will find them, but I ask that when you do find them you will throw the mantle of charity over them and remember that they are mistakes of the head and not of the heart.

THE PRESIDENT: The next order of business is the President's Address.

(The Vice-President takes the chair.)

(The President then read his address.)

THE VICE-PRESIDENT: Members of the American Pharmaceutical Association you have heard the reading of an address by the President of this organization. This address is filled with meat, with food for thought. What is your pleasure regarding it?

MR. JACOB DINER: Mr. Chairman, I move that the address of the President be received and referred to a Special Committee on the President's Address for consideration and recommendations to be presented at a subsequent meeting.

(This motion was seconded and carried.)

THE VICE-PRESIDENT: In pursuance of that resolution I will appoint the following as members of that committee. During the reading of this address I have felt the importance of selecting for members of such a committee men who would represent the Association not only intellectually but geographically. I therefore have selected the following: James H. Beal, Illinois, Chairman; Rufus A. Lyman, of Nebraska; Samuel C. Henry, of Philadelphia; Martin I. Wilbert, of the District of Columbia; Lewis C. Hopp, of Ohio.

(The President resumes the Chair.)

THE PRESIDENT: I have the great pleasure of introducing to you Dr. Solomon Solis Cohen, of Philadelphia, who will address the Association.

DR. COHEN: Mr. President and friends of the American Pharmaceutical Association: I presume that most of you are ready for a more material repast than that which I had intended to offer, and I shall not detain you. I beg to express to you my thanks for the honor of your invitation and to wish your Association and its members all success in the great work which you have undertaken.

The subject of the physician's interest in the pharmacopœial revision is one which I can barely touch upon, cannot attempt to expound in the very few minutes that it would be proper now to keep you here. The new Pharmacopœia, in which many of you and your officers and your co-laborers have toiled, as well as many physicians who have tried to coöperate with you, will speak for itself. The National Formulary, which I have seen—I have not yet seen the new Pharmacopœia bound, because I understand the mechanical delays in producing it have been such as to have kept it back; the great demand for it, the much larger number of copies which are to be issued than those which were anticipated, and the difficulties which all publishers and printers are now experiencing in obtaining supplies and the like have kept back the new Pharmacopœia, and even the members of the Revision Committee have not received their copies, doubtless it will be shortly—but the National Formulary I have seen and I want to congratulate you on it.

The best of friends sometimes differ and we form different opinions as to the usefulness and desirability of various things. I once had a colored boy for a driver who belonged to a debating society and he told me that one of the questions in their debating society was, "Which am de more useful, the sun or the moon?" and I asked him what the conclusion had been. Well, he says, "The speech that I thought the best was this," he says, "the moon am the more useful for the moon shines at night in the darkness when the sun shines in the day when you ain't got no use for it."

Well, I think we have got some use for the standards in the National Formulary, although they are shining in the bright daylight. The Pharmacopœia, unfortunately—I say this from a medical viewpoint, from the viewpoint of a practising physician, from the viewpoint of a teaching physician and from the viewpoint of a consulting physician—has left out a good many drugs which might well have been included. The consensus of opinion and discussion that I have not the time to go into now, resulted in their exclusion. There are a great many physicians in the United States who want to use and want to prescribe for their patients some of the drugs which are no longer official in the United States Pharmacopœia, and when they prescribe for them they want to get what they prescribe and not something else. They want to get a drug which is definitely described or authoritatively standardized. They want a legal standard, a standard to which the dispensing druggist may be legally forced to conform.

Now the Congress of the United States in its wisdom passed an act which stated that the drugs dispensed in the United States of America should conform to the standards established by the United States Pharmacopœia and the National Formulary. Every time, in the discussions in the Committee of Revision, and especially in the discussions of the committee on scope, of which I had the honorable misfortune to be the chairman, that the question arose as to the exclusion of this, that or the other, somebody said, "Let the National Formulary have it." Well, the National Formulary got it and there it is, and it is shining in the broad daylight, and it is going to be useful, useful to the druggist, useful to the doctor, and, more than all, useful to the patient; because when a patient selects a physician to treat him he is entitled to the fullest, broadest, wisest, best treatment that that physician knows. Now the best treatment known to the physician in a particular emergency at the bedside may be to let the patient alone. That is very often the case, give nature a chance, and let the patient get well. But a great many times, if you simply trust to nature the patient won't get well. The natural forces at work are the forces of destruction, but not of construction, of dissolution and not of recuperation, and the physician is called upon to interpose between life and death and it may be that the very thing that will carry the patient over the crisis that is impending, that will be the featherweight in the scale, so that the balance may go to the side of life and not to the side of death, may be some drug that is not in common use. It may be some drug that every pharmacologist has not tested and studied. It may be some drug that some old woman has told him about.

Benjamin Rush, who signed the Declaration of Independence and was the greatest ornament of the medical profession of the United States in his day, perhaps inspired by some saying of Paracelsus, said this—I have never seen it in his published writings, but at the College of Physicians in Philadelphia I came across a manuscript notebook kept by one of the students of Benjamin Rush in which were recorded Benjamin Rush's lectures, and in that manuscript notebook I read this, and it stuck in my mind ever since, and I thank God I did read it in the early stages of my professional career: "Never be afraid to learn," said Rush to his students. "Never be afraid to learn, even from a quack or an old woman."

Now the drug that will save my patient at this moment may be something that I learned from a quack or an old woman, and it may not be in the United States Pharmacopœia, and I want to get it, and I want to get it pure and I want to get it right, I want a standard for it, and the National Formulary is the place for it and there it is and there it ought to be.

I have no sympathy with that narrow vision which is in a measure dominating the medical teaching in some quarters at the present day, and of which the most apt description is that of the poet Shelley when he speaks of the "Ignorance that makes a blank of all beside itself"; that narrow vision which is content with limited experience and ignorance of the whole world outside.

Now there is a great deal of experience in the use of drugs and pharmaceutical preparations of various kinds which has not got into the orthodox medical text-books; there is a good deal that has not got into the text-books and has not got into the brains of the medical teachers yet, that is extremely useful. If I had the writing of a pharmacopœia alone and unaided—or rather the selection of the things to be written about, for I trust the writing to experts like Remington, Lloyd, Alpers and the others—I would include in the scope of that Pharmacopœia everything at any time, anywhere at any time in the world that was found useful in the fight against disease. That would not mean that every medical student and every pharmaceutical student has to study about it. Why, Lord help you, there isn't one of us here who could pass a State Board Examination. We don't study to pass examinations. We study to work and when we want to know what the atomic weight of oxygen or anything else is, may be sixteen or may be fifteen and a fraction, when we want to know what the accepted atomic weight of something is, we go to the atomic tables. That is all we are compelled to know, where to get the information.

Any examining board that hunts out of the way things to trap the student with, whether it is an examining board in law or whether it is an examining board in medicine, whether it is an examining board in pharmacy, conclusively demonstrates its incompetency.

What I want to find out when I examine my students is not what they are ignorant of, but what do they know. What have I taught them? That is the greatest question that ever comes to the attention, "How well have you done your work?" Now the answer to that is in the papers of the pupils first, and in the lives and work of our pupils afterwards. And the examiner only convicts himself of not having taught that which he ought to have taught when he selects strange, abstruse, and tricky things for the sake of flunking the student.

And so it is all through life, to be helpful we want two things, we want ideals and we want courage. Now I am glad to see that the pharmaceutical profession has both, and is fast becoming more and more both a profession of courage and a profession of ideals. You have set to work to lift your standard of qualification for membership in the pharmaceutical profession. We also have tried to lift the standard of membership in the medical profession, but there is always a danger of going too far in efforts of that kind. You want the best possible men as pharmacists, previously trained in the best possible way, but your entrance qualifications must be relevant. They must be such qualifications as a student needs to study pharmacy, not those qualifications which he needs to study geography. A high school graduation is, I think, right. A good high school course, a broad high school course, not the high school courses that have been forced upon us in many quarters which are full of fads and irrelevancies, but the good old-fashioned, broad foundation that came from such a course, for example, as my Alma Mater, the Central High School of Philadelphia, such a course is a proper and necessary and excellent qualification for the study of pharmacy and the study of medicine.

But it is not necessary, in order that a man shall know the difference between sodium bicarbonate and arsenic trioxide that he should be able to explain just what was at the back of Shakespeare's mind when he wrote Macbeth.

Abraham Lincoln once wrote a note to Edwin Stanton which read about like this: "Please appoint Mr. So and So, Colonel of the Fifteenth, whatever it was, New Jersey regiment, irrespective of his knowledge of the exact shade of Julius Cæsar's hair."

Now don't go into examining pharmacist students before you admit them to your College of Pharmacy on the color of Julius Cæsar's hair. Courage is necessary sometimes to stand out against that which parades as progress and is, really, merely intolerance, narrowness and jealousy. A good deal of what is said and attempted in the way of restricting entrance to the professions is the opposite of what was once called the trades union method. It is to exclude from the guild. We are in, and keep the other fellow out. Just like the people who are going to restrict immigration, they came over on the Mayflower and the fellow that comes over on the Flower of May will stay away. But they came from the same place. As my friend Arthur Stephenson once said, whose grandfather came over on the Mayflower, but if he only came yesterday he would have as good a right here as I have. We have got in, keep the other fellow out. The attempt is being made to restrict the professions to rich men's sons. I once told a committee before which I argued on the question of qualifications for the study of medicine, " What is the use of all that qualification? Write in simply ' Rich father ' and let it go at that."

We want men properly trained, broad minded, properly grounded in all the relevancies that qualify them to study the particular profession which they are about to enter, and if they have been through college, so much the better, it makes them better, broader men in every respect, but you have no right by law to restrict the man's opportunity to serve his fellows by measuring his knowledge of English literature or Homer, Virgil, or any other ancient poet.

Now the ideal pharmacist is the man who devotes himself to the attribute of pharmacy. It is unfortunately necessary, especially in some rural districts—

not so much now that our railroad communications have been so extended, but still necessary here and there for others than pharmacists that drugs be sold in the drygoods shop and grocery store and the hardware emporium, but not in a big city. There are plenty of china shops in Philadelphia. You can have all kinds of grocery stores in Atlantic City. The true pharmacist is not the man who goes into the selling of merchandise with the putting up of prescriptions as a side issue, but the man who offers his services as a competent prescription dispenser, and if necessary also obliges his patrons by dealing in things related to drugs, as catheters, and thermometers, and the various other things that are required in the sick room, toilet, and the treatment of patients.

Now I want to see pharmacy elevated to the rank of a profession, of a real profession. It was at one time part of the medical profession, physicians gathered and compounded their own drugs. I remember there was an old physician and poet who lived in Spain in the year 1050, and who wrote this in one of his letters—he was apologizing to a friend for not having answered his letter sooner—and he said: " There are many who speak about me falsely in my presence and others who believe what they say, and the result is that I must occupy myself all day and night, and even in those precious hours that belong neither to the day nor to the night, with the follies of medicine wherof there is no evil." And he also said: " I mix drugs and the people take them, and what will happen then, God only knows." And there was another physician too, his contemporary, who, writing for the Synagogue a prayer for a Jew, put in this way: " On mead, unwaving grain, on my wood, let drops of blessing fall that all thy children may have bread and healing pay for it." That is the practice of the mead and the wood, fertilized by the dew, vivified by the dew and made by the pharmacist into healing for all mankind.

Take that for your ideal. You are the appointed agents of healing. The physician must call upon you.

If our thoughts are to be guided by the terrible struggle that is now going on about us, around us, the other side of the world, we may remember that on one side their great fault was said to be lack of munitions. It was also said to be faulty munitions. Now you are the munition makers, you are those who are to provide the weapons wherewith the physician in his strategy and his tactics attempts to overcome disease, prevent epidemics and save human life. If these munitions are not sufficient, if the scope be unduly restricted, if those munitions are not perfect, if the standard be not prescribed and adhered to, the efforts of the physician must be largely hampered if not altogether hindered. Therefore we look to you to raise the ideals of your profession, to coöperate with us in our great effort for humanity.

And I am reminded in conclusion, when I think of the shadows all about us, of that brave speaker of the Rhode Island Assembly a hundred years ago, when there came a great day of sudden darkness, and someone, some frightened legislator arose in the Assembly and said, " Mr. Speaker, the Day of Judgment has come. Let us adjourn." And the Speaker said, " Light the candles, and if it be the Day of Judgment let the Lord's Messenger find us at our work."

The President: Dr. Cohen, the applause with which your address was greeted shows not only how popular you are with us but also how much we enjoyed your address. Let me again in behalf of this Association express our sincere thanks for your presence and your remarks.

We have with us a great many delegates from various associations, pharmaceutical and otherwise, local associations, national associations, also representatives of the government, the army, the navy, the health corps, and I extend to all these —I think most of them are members of the Association, but if they are not I extend to all these the privilege of the floor and I hope that they will consult with us and that we will have occasion to hear from them in the course of our meetings. I now declare a recess of ten minutes to secure the members of the Nomination Committee. The delegates from each state or the members from each state will assemble and appoint two from each state and report in ten minutes.

(Recess taken for ten minutes.)

NOMINATING COMMITTEE.

The roll of states was called and the following members of the nominating committee were announced: Colorado, E. G. Fine; District of Columbia, M. I. Wilbert and S. L. Hilton; Connecticut, Thos. Main and J. A. Leverty; Illinois, S. A. Williams and J. A. Becker; Indiana, F. W. Meissner and F. E. Bibbins; Kansas, L. E. Sayre; Louisiana, Philip Asher and J. R. Keeny; Massachusetts, E. L. Patch and J. G. Godding; Maryland, A. R. L. Dohme and J. B. Thompson; Michigan, J. O. Schlotterbeck and L. A. Seltzer; Minnesota, E. L. Newcomb; Missouri, O. F. Claus and Francis Hemm; Nebraska, R. A. Lyman and N. P. Hansen; New Jersey, G. M. Beringer and J. M. Andrews; New York, W. C. Anderson and C. O. Bigelow; North Carolina, W. W. Horn and C. B. Greer; Oklahoma, W. R. Jarrett and C. H. Stocking; Ohio, J. C. Otis and C. A. Dye; Oregon, Geo. C. Blakely; Pennsylvania, J. C. Wallace and Robert Fischelis; South Dakota, F. W. Halbkat and H. A. Eaton; Tennessee, J. T. McGill; Texas, W. H. Cousins and E. G. Eberle; Virginia, W. F. Rudd; Washington, A. W. Linton; West Virginia, F. B. Haymaker; Cuba, J. P. Alacan and Francisco Taquechel.

President Alpers appointed five members at large as follows: H. M. Whelpley. F. H. Freericks, H. V. Arny, J. A. Koch and H. P. Hynson.

It was announced that the Nominating Committee would meet at once after the adjournment of this general session.

Upon motion the first general session was adjourned.

Wm. B. Day,
General Secretary.

The transactions of the Nominating Committee will be reported in a succeeding issue of the Journal, and the report of the General Sessions continued. For the information of the members not present and who may desire to know, a list of the officers for the ensuing year is appended: President, Frederick J. Wulling, Minnesota; honorary president, J. O. Burge, Tennessee; first vice-president, Leonard A. Seltzer, Michigan; second vice-president, L. E. Sayre, Kansas; third vice-president, Philip Asher, Louisiana.

Members of the Council: James H. Beal, William C. Alpers and Harry B. Mason.

Officers of the Council: Chairman, Lewis C. Hopp; vice-chairman, S. L. Hilton; secretary, Joseph W. England; general secretary, William B. Day; treasurer, H. M. Whelpley; reporter on the Progress of Pharmacy, Editor of the Journal, E. G. Eberle.

Indianapolis was selected for the 1917 meeting of the Association.

A list of those who registered during the Atlantic City meeting follows:

LIST OF MEMBERS IN ATTENDANCE, ATLANTIC CITY MEETING, A. PH. A.

(Copied from the Official Register.)

Jose P. Alacan, Havana, Cuba.
Miss B. Alfonso, Havana, Cuba.
Miss Clara Alpers, New York City.
William C. Alpers, Cleveland, Ohio.
Mrs. W. C. Alpers, Cleveland, Ohio.
William C. Anderson, Brooklyn, N. Y.
Mrs. William C. Anderson, Brooklyn, N. Y.
Rachel French Andrews, Woodstown, N. J.
George M. Andrews, Woodstown, N. J.
Franklin M. Apple, Philadelphia.
Mrs. Franklin M. Apple, Philadelphia.
Fred W. Archer, Boston.
Mrs. Fred W. Archer, Boston.
H. V. Arny, New York City.
Philip Asher, New Orleans.

Miss Edith M. Barnes, Roanoke, Va.
R. P. Barnes, Roanoke, Va.
H. C. Barnes, Roanoke, Va.
Miss Mabel Barnhill, N. C.
Mrs. J. H. Beal, Urbana, Ill.
J. H. Beal, Urbana, Ill.
Louis Buzer, New York City.
Ernest Berger, Tampa, Fla.
Mrs. George M. Beringer, Camden, N. J.
George M. Beringer, Camden, N. J.
I. A. Becker, Chicago, Ill.
Francis E. Bibbins, Indianapolis, Ind.
C. O. Bigelow, New York City.
Russell T. Blackwood, Philadelphia.
Mrs. R. T. Blackwood, Philadelphia.
L. G. Blakeslee, St. Louis, Mo.
George C. Blakeley, The Dalles, Oregon.
Mrs. Geo. C. Blakeley, The Dalles, Oregon.
C. F. Booth, Buffalo, N. Y.
Edwin M. Boring, Philadelphia.
Mrs. Theodore J. Bradley, Boston, Mass.
Theodore J. Bradley, Boston, Mass.
F. B. Brill, Bridgeport, Conn.
Miss Clara Brill, Bridgeport, Conn.
Mrs. F. B. Brill, Bridgeport, Conn.
C. S. Brinton, Haddonfield, N. J.
Helen Ritz Burns, Lewistown, Pa.
Burton T. Bush, New York City.
Garrett Byrnes, Maplewood, N. J.
H. C. Christensen, Chicago, Ill.
Mrs. Otto F. Claus, St. Louis, Mo.
Otto F. Claus, St. Louis, Mo.
Charles J. Clayton, Denver, Col.
W. L. Cliffe, Philadelphia.
B. Olive Cole, Baltimore.
E. Fullerton Cook, Philadelphia.
Mrs. E. Fullerton Cook, Philadelphia.
Albert D. Cooley, Seaside Heights, N. J.
Zada M. Cooper, Iowa City, Ia.
E. G. Cox, Craig, Mo.
Eugene H. Cox, Atlanta, Ga.
Mrs. Eugene H. Cox, Atlanta, Ga.
John Culley, Ogden, Utah.
Mrs. Harry W. Crooks, Newark, N. J.
Harry W. Crooks, Newark, N. J.

V. C. Daggett, New York City.
William E. Danhauer, Owensboro, Ky.
William B. Day, Chicago, Ill.
Miss Charlotte Day, Chicago, Ill.
Miss Helen Day, Chicago, Ill.
J. Atlee Dean, Philadelphia.
Mrs. J. M. H. Deemer, Atlantic City.
J. M. H. Deemer, Atlantic City.
Mrs. J. G. Diaz, Havana, Cuba.
J. G. Diaz, Havana, Cuba.
Mrs. Geo. M. Dicker, Newark, N. J.
Geo. M. Dicker, Newark, N. J.
F. W. Dickson, Baltimore, Md.
Mrs. F. W. Dickson, Baltimore, Md.
August Diehl, Brooklyn, N. Y.
Emma L. Diekman, New York City.
Mrs. Geo. C. Diekman, New York City.
Geo. C. Diekman, New York City.
C. Lewis Diehl, Louisville, Ky.
Mrs. C. Lewis Diehl, Louisville, Ky.
Jacob Diner, New York City.
Mrs. Jacob Diner, New York City.
Alfred R. L. Dohme, Baltimore, Md.
Alex. Dubell, Mt. Holly, N. J.
Mrs. Alex. Dubell, Mt. Holly, N. J.
Charlotte I. Du Bois, Catskill, N. Y.
W. L. Du Bois, Catskill, N. Y.
A. G. Du Mez, Madison, Wis.
Mrs. H. A. B. Dunning, Baltimore, Md.
H. A. B. Dunning, Baltimore, Md.
Theo. Drake, Baton Rouge.
Mrs. Theo. Drake, Baton Rouge.
Clair A. Dye, Columbus, Ohio.
Mrs. Clair A. Dye, Columbus, Ohio.

E. G. Eberle, Philadelphia.
Mrs. E. G. Eberle, Philadelphia.
Clyde L. Eddy, New York City.
Mrs. Frank R. Eldred, Indianapolis.
Frank R. Eldred, Indianapolis.
Mrs. Louis Emanuel, Pittsburgh, Pa.
Louis Emanuel, Pittsburgh, Pa.
H. Englehardt, Baltimore, Md.
Joseph W. England, Philadelphia.
Elizabeth R. England, Philadelphia.
Mrs. Joseph W. England, Philadelphia.

Mrs. Ellis E. Faulkner, Delton, Mich.
Ellis E. Faulkner, Delton, Mich.
M. R. Feltwell, Sewickley, Pa.
Miss C. Ferrer, Havana, Cuba.
Robert P. Fischelis, Philadelphia.
Eben G. Fine, Boulder, Colo.
Mrs. E. G. Fine, Boulder, Colo.
Chas. M. Ford, Cambridge, Mass.
William M. Fouch, Baltimore, Md.
James Foulke, Jersey City, N. J.
Jamella Fox, Philadelphia.
J. M. Francis, Detroit, Mich.
Mrs. Louise Diehl Frank, Haddon Heights, N. J.
F. S. Frankfurter, New York City.
Katherine Freel, New York City.
Frank H. Freericks, Cincinnati, Ohio.
Leo H. Fried, Jersey City, N. J.

John C. Gallagher, Jersey City, N. J.
E. H. Gane, New York City.
Irving P. Gammon, Boston.
Mrs. Irving P. Gammon, Boston.
Antonia M. Garrego, Havana, Cuba.
St. Claire Ransford-Galf, New York City.
Mrs. S. Gelabert, Havana, Cuba.
Mr. S. Gelabert, Havana, Cuba.
C. Thurston Gilbert, Atlantic City.
Mrs. T. P. Gillispie, New Haven, Conn.
W. Curtis Glover, Lawrence, Mass.
F. T. Gordon, Philadelphia.
John G. Godding, Boston, Mass..
Mrs. John G. Godding, Boston, Mass.
J. Russell Graham, Philadelphia.
C. P. Greyer, Morgantown, N. C.
Mrs. L. W. Griffin, Boston, Mass.
Geo. E. Grover, Somerville, Mass.
Mrs. Geo. E. Grover, Somerville, Mass.

G. Hahn, Ft. Hancock, N. J.
F. W. Halbkat, Webster, S. D.
Neils P. Hansen, Lincoln, Nebraska.
H. L. Haussamen, Grafton, No. Dak.
J. F. Hancock, Baltimore, Md.
Mrs. J. F. Hancock, Baltimore, Md.
Miss Lillian Hancock, Baltimore, Md.
William T. Hankey, Cleveland, Ohio.
Mrs. William T. Hankey, Cleveland, Ohio.
H. L. Harris, New York City.
Susannah G. Haydock, Philadelphia.
Mrs. F. B. Haymaker, Clarksburg, W. Va.
F. B. Haymaker, Clarksburg, W. Va.
Mrs. S. C. Henry, Philadelphia.
Samuel C. Henry, Philadelphia.
Charles S. Herron, Baltimore, Md.
S. L. Hilton, Washington, D. C.
Lewis M. Hirls, Burlington.
C. W. Holzhauer, Newark, N. J.
Mrs. Chas. Holzhauer, Newark, N. J.
Chas. Holzhauer, Newark, N. J.
Lewis C. Hopp, Cleveland, Ohio.
Mrs. Lewis C. Hopp, Cleveland, Ohio.
Warren W. Horne, Fayetteville, N. C.
Mrs. G. H. Horning, Roselle Park, N. Y.
Jeannot Hostmann, Hoboken, N. J.
Mrs. Jeannot Hostmann, Hoboken, N. J.
E. V. Howell, Chapel Hill, N. C.
Alfred B. Huested, Delmar, N. Y.
Mrs. Alfred B. Huested, Delmar, N. Y.
Henry P. Hynson, Baltimore, Md.

Ralph C. Jennings, New York City.
Edward B. Jones, Mt. Holly, N. J.
Henry A. Jorden, Bridgeton, N. J.
Mrs. Henry A. Jorden, Bridgeton, N. J.
John M. Jordan, Charleston, S. C.

Claire Kantrowitz, New York City.
Hugo Kantrowitz, New York City.
Mrs. Hampton Ray Kenaston, Bonesteel, So. Dakota.
Ida E. Kebler, Washington, D. C.
L. F. Kebler, Washington, D. C.
J. Roy Keeny, New Orleans, La.
H. A. Keith, Lake Preston, So. Dak.
E. J. Kennedy, New York City.
C. Mahlon Kline, Philadelphia.
W. H. Knoepfel, Scranton, Pa.
Mrs. W. H. Knoepfel, Scranton, Pa.
Miss Florence Koch, Pittsburgh, Pa.
J. A. Koch, Pittsburgh, Pa.
Mrs. C. S. Koon, Muskegon, Mich.
Charles S. Koon, Muskegon, Mich.
S. Kischam, New York City.
Julius Kramer, New York City.
R. A. Kuever, Iowa City, Ia.

Mrs. E. H. La Pierre, Boston, Mass.
Elie H. La Pierre, Boston, Mass.
Mrs. J. Leon Lascoff, New York City.
J. Leon Lascoff, New York City.
Charles H. La Wall, Philadelphia.
Millicent R. La Wall, Philadelphia.
Robt. S. Lehman, New York City.
Jos. L. Lemberger, Lebanon, Pa.
Mrs. Jos. L. Lemberger, Lebanon, Pa.
I. E. Leonard, Atlantic City, N. J.
Mrs. J. A. Leverty, Bridgeport, Conn.
J. A. Leverty, Bridgeport, Conn.
Louis Spencer Levy, New York City.
Miss V. Lewis, West Point, Va.
A. W. Linton, Seattle, Wash.

Miss Dorothy Lloyd, Cincinnati.
Mrs. John Uri Lloyd, Cincinnati.
John Uri Lloyd, Cincinnati.
E. Grace Lotz, Baltimore, Md.
Mrs. Wm. H. Lotz, Baltimore, Md.
Miss Reta Lovis, New York City.
H. C. Lovis, New York City.
Rufus A. Lyman, Lincoln, Neb.
Thos. F. Main, New York City.
W. H. McNeill, Paterson, N. J.
Mrs. W. H. McNeill, Paterson, N. J.
A. Major, New York City.
William Mansfield, New York City.
Miss Margaret Martin, Roselle, N. Y.
Adolph F. Marquier, Newark, N. J.
Harry B. Mason, Detroit.
Mrs. I. Vaughn Mathis, Ventnor.
I. Vaughn Mathis, Ventnor.
Harry Matusow, Philadelphia.
Edwin W. May, Martinsville, Ind.
Mrs. E. W. May, Martinsville, Ind.
Frank L. McCartney, New York City.

Robert F. McDonald, New York City.
J. T. McGill, Nashville, Tenn.
Mrs. F. W. Meissner, La Porte, Ind.
F. W. Meissner, La Porte, Ind.
J. C. Mendenhall, Evansville, Ind.
Mrs. Louis J. Meuser, Dover, N. J.
Louis J. Meuser, Dover, N. J.
Fred R. Meuser, Dover, N. J.
Chas. G. Merrell, Cincinnati.
Chas. L. Meyer, Baltimore, Md.
Adolph W. Miller, Philadelphia.
Leo L. Mrazek, Chicago, Ill.
Hugh C. Mulldoon, Boston, Mass.
J. T. Munds, Montclair.
Mrs. J. T. Munds, Montclair.
B. L. Murray, Rahway, N. J.

Edwin L. Newcomb, Minneapolis, Minn.
Mrs. Clara Newton, Boston, Mass.
Harry J. Novack, Brooklyn, N. Y.

Frank J. O'Rourke, Whitestone, N. Y.
John C. Otis, Cincinnati.

C. H. Packard, Boston, Mass.
Geo. W. Parisen, Perth Amboy, N. J.
Edgar L. Patch, Boston, Mass.
Annie M. Patterson, Baltimore.
John F. Patton, York, Pa.
Josiah C. Peacock, Philadelphia.
Bertha L. DeG. Peacock, Philadelphia.
E. L. Pilck, Covington, Ky.
Paul S. Pittenger, Philadelphia.
Mrs. Paul S. Pittenger, Philadelphia.
Warren H. Poley, Mt. Airy, Pa.
M. L. Porter, Danforth, Me.
H. E. Purdy, Derby, Conn.
Mrs. H. E. Purdy, Derby, Conn.
D. W. Ramsaur, Palatka, Fla.
Otto Raubenheimer, Brooklyn, N. Y.
Mrs. Joseph P. Remington, Longport, N. J.
Joseph P. Remington, Longport, N. J.
W. S. Richardson, Washington, D. C.
Geo. T. Riefflin, New York City.
J. R. Rippetoe, New York City.
Emil Roller, New York City.
Leo Roon, Elmhurst, L. I.
Chas. R. Rosenberg, Jr., Atlantic City.
Miss Ida B. Roth.
Lewis William Rowe, Detroit, Mich.
Mrs. W. F. Rudd, Richmond, Va.
Wortley F. Rudd, Richmond, Va.
Edsel A. Ruddiman, Nashville, Tenn.
Mrs. Edsel A. Ruddiman, Nashville, Tenn.
Mrs. H. H. Rusby, Newark, N. J.
H. H. Rusby, Newark, N. J.

Louis Saalbach, Pittsburgh, Pa.
Mrs. Edward A. Sayre, Orange, N. J.
Edward A. Sayre, Orange, N. J.
L. E. Sayre, Lawrence, Kans.
Hugo H. Schaefer, Brooklyn, N. Y.
Mrs. Frederick Schaefer, Brooklyn, N. Y.
Frederick Schaefer, Brooklyn, N. Y.
Geo. E. Schweinfurth, New York City.
Wilbur L. Scoville, Detroit, Mich.
Miss E. R. Seabury, New York City.
Leonard A. Seltzer, Detroit, Mich.
Mrs. W. E. Sherriff, Ellsworth, Kans.
W. E. Sherriff, Ellsworth, Kans.
Chas. H. Skinner, Windsor, Vt.
Theodore Smith, Baltimore, Md.
Clyde M. Snow, Chicago, Ill.
Mrs. Clyde M. Snow, Chicago, Ill.
Edgar R. Sparks, Burlington, N. J.
Miss Ruth E. Sparks, Burlington, N. J.
Master Paul R. Sparks, Burlington, N. J.
Mrs. E. R. Sparks, Burlington, N. J.
L. L. Staehle, Newark, N. J.
I. V. Stanley Stanislaus, Lock Haven, Pa.
Mrs. Zillah Staples, Boston.
Mabel C. Starr, Philadelphia.
William L. Stearns, Stapleton, N. Y.
Mrs. E. T. N. Stein, Montclair, N. J.
Miss Mary K. Stein, Montclair, N. J.
Edward T. N. Stein, Montclair, N. J.
F. E. Stewart, Philadelphia.
Charles H. Stocking, Norman, Okla.
Mrs. David Stolz, Syracuse, N. Y.

David Stolz, Syracuse, N. Y.
Frank P. Streeper, Chestnut Hill, Pa.
Freeman P. Stroup, Philadelphia.
Louise S. Suhr, West Hoboken, N. J.
Raymond Swarty, Bridgeport, Conn.
Leon A. Taylor, Lakewood, N. J.
Francisco Taquechel, Havana, Cuba.
Wilber J. Teeters, Iowa City, Ia.
G. D. Timmons, Valparaiso, Ind.
Mrs. G. D. Timmons, Valparaiso, Ind.
John B. Thomas, Baltimore, Md.
C. A. M. Todd, Kalamazoo, Mich.
Jos. F. Turner, Brooklyn, N. Y.

Miriam G. Truby, Pittsburgh.
P. Henry Utech, Meadville, Pa.
Mrs. P. Henry Utech, Meadville, Pa.

Miss Nannis Vaden, Richmond, Va.
Chas. E. Vanderkleed, Philadelphia.
Arno Viehover, Washington, D. C.

John C. Wallace, New Castle, Pa.
Lucius L. Walton, Williamsport, Pa.
Miss Adelaide E. Ward, Cleveland, Ohio.
Joseph Weinstein, New York City.
Joseph B. Welsh, Paducah, Ky.
M. I. Wilbert, Washington, D. C.
Seward W. Williams, Chicago.
Thomas W. Williamson, Frederick.
J. Fred Windolph, Norwich, N. Y.
Mrs. O. J. Winn, Boston, Mass.
H. A. Winn, Boston, Mass.
Mrs. Curt P. Wimmer, New York City.
Curt Paul Wimmer, New York City.
E. H. Wisner, Valparaiso, Ind.
Mrs. H. M. Whelpley, St. Louis, Mo.
H. M. Whelpley, St. Louis, Mo.
H. C. Wood, Jr., Philadelphia.

W. H. Zeigler, Charleston, S. C.
Mrs. W. H. Zeigler, Charleston, S. C.
E. V. Zoeller, Tarboro, N. C.

J. W. ENGLAND
Secretary, Phila. Council, A. Ph. A.

DR. H. M. WHELPLEY
St. Louis, Treasurer, A. Ph. A.

AMERICAN PHARMACEUTICAL ASSOCIATION FINANCES, AUGUST 28, 1916.*

ADDENDA TO THE TREASURER'S REPORT, BY H. M. WHELPLEY, TREASURER.

The annual report of the treasurer for the fiscal year 1916 was printed in the Journal of the A. Ph. A., vol. v, pp. 640–651. This was prepared in accordance with the by-laws and has been approved by the Auditing Committee. The report covers a period which closed eight months ago. I now submit a report showing the financial status of the Association at the present time and also reviewing some of the activities not recorded in the more formal report.

Following the 1915 meeting, I suggested to the members of the Council that they read the history of the funds as given in the Year-Book and study the Constitution, By-laws, General Rules, Rules of Finance and those of the Council in order to be better prepared to discharge the duties of Council membership. One member resented the intimation that he was not fully acquainted with all of the provisions enumerated. I beg his pardon but still feel justified in urging the entire A. Ph. A. membership to become more familiar with the plan of organization and the executive procedures. This will facilitate coöperation in the Association work.

The Fiscal Year formerly dated from July 1 to June 30 inclusive. The Association changed this custom in 1911 so that beginning with January, 1912, the fiscal year has been concurrent with the calendar year. The new plan has facilitated the work of the treasurer in collecting dues. The fiscal year now corresponds with the volume of the Journal and as far as I have observed is without objection or criticism. The former fiscal year caused constant confusion which required much correspondence with members.

The Professor C. Lewis Diehl Honorarium.—The Council at the 1915 meeting voted Professor C. Lewis Diehl the sum of one thousand dollars ($1000.00) " for his work on the National Formulary, Fourth Edition." The motion (see Journal A. Ph. A., vol. iv, p. 1377) provided for the payment to be made in two instalments of five hundred dollars ($500) each. One payment at once and the other " during the year 1916." The first instalment was paid, September 14, 1915 (see J. A. Ph. A., vol. v, p. 645). The Council subsequently reconsidered this action and directed that the second instalment be paid " as soon as, in the judgment of the treasurer and the Committee on Finance, the condition of the treasury and the interests of the Association will permit." (See J. A. Ph.A., vol. v, p. 93.)

The Committee on Finance approved the payment of the second instalment by voucher check, dated August 19, 1916, so that the condition of the original vote of the Council has been carried out four months earlier than the time limit. This one thousand dollars ($1000.00) has been charged to the N. F. IV expense account.

Disposition of National Formulary Net Income.—The Council at the 1915 meeting adopted the following:

> Rule 14. *Disposal of Receipts from National Formulary:* The treasurer shall keep a separate and accurate account of all receipts and disbursements for the National Formulary. Any balance of receipts in excess of disbursements remaining to the credit of this account at the end of any fiscal year shall be credited to the Endowment Fund and become a part thereof (see Jour. A. Ph. A., vol. iv, p. 1376).

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* Presented at the Atlantic City meeting, A. Ph. A., 1916.

The treasurer desires to know whether this rule became effective the day it was adopted, August 13, 1915, or is it to go into operation with the N. F. IV account and the first payment to the Endowment Fund, made December 31, 1916. The National Formulary receipt for the period, August 13 to December 3, 1915, exceeded the disbursements by forty-five dollars and ninety-five cents ($45.95). Should this sum be taken out of the current funds and placed in the Endowment Fund? If the National Formulary disbursements for a fiscal year exceed the receipts, should the debit balance be carried over into the next fiscal year? The National Formulary receipts from January 1, 1916, to date, exceed the disbursements by nine hundred dollars and sixty-five cents ($900.65). If Rule Fourteen becomes operative with the N. F. IV, should the disbursements from the beginning of the expense for this revision be taken into account with the disbursements for 1916? The disbursements for the N. F. IV began in 1908 and amount to about thirty-five hundred dollars ($3500.00). Should the treasurer continue to carry the National Formulary receipts with the current funds or should he open a separate bank account with the National Formulary?

The A. Ph. A. Deposits.—Funds have been placed in the Boston Penny Savings Bank since 1903 and to-day that institution has Eighteen thousand and ninety-seven dollars and seventy-nine cents ($18,097.79) to the credit of the A. Ph. A. In 1908, the Council approved the recommendation of the Committee on Finance and in accordance with the same the account of the Current Fund was opened with the International Bank of St. Louis. The Committee on Invested and Trust Funds has approved of placing additional accounts with this bank. To-day, the total amount to the credit of the A. Ph. A. in the International Bank of St. Louis is fourteen thousand three hundred and sixty-five dollars and four cents ($14,365.04).

Under date of December 2, 1915, W. B. Day, Chairman of the Committee on Invested and Trust Funds, wrote the treasurer, as follows:

> I have made inquiry through my bank, regarding the International Bank of St. Louis and the Boston Penny Savings Bank. I have also had Messrs. E. G. Eberle and Charles Holzhauer make inquiry. All responses have been favorable. I have no doubt our funds are thoroughly well protected.
>
> When I first learned that the Boston Penny Savings Bank paid 4 per cent. interest while the first-class savings banks in Chicago paid but 3 per cent., I wondered if it was as good and safe and conservative as our banks here, but I am informed that the savings banks in Massachusetts are very well guarded by the provisions of the banking law and that this bank, particularly, is an old established and strong one. I think we have no cause whatever for any uneasiness in regard to the safety of our funds.

The registered bonds, certificate of deposit, A. Ph. A. certificate of incorporation, Ebert will, and other important papers are deposited in Box No. 4227 of the Title Guaranty Trust Co. safe deposit vault, at Seventh and Chestnut Streets, St. Louis. This action has been approved by the Council but the security of the vaults should be investigated each year.

Of course, the treasurer will continue these deposits until otherwise instructed. I feel that the treasurer should be relieved of all responsibility in this matter. The Council should through the proper committees (Finance and the one on Invested and Trust Funds) keep well informed regarding the depositories for the A. Ph. A. funds and records and annually instruct the treasurer. What are the wishes of the Association for the ensuing year?

Separate Funds and Accounts.—The A. Ph. A. now has nine bank accounts, as follows: Life Membership Fund, Centennial Fund, Ebert Prize Fund, College Prize Fund, Endowment Fund, Procter Monument Fund, Rice Memorial Fund, Ebert Legacy Fund, Current Cash. One certificate of deposit and twenty-six thousand dollars in registered bonds are also in the care of the treasurer. Separate ledger accounts are kept with the National Formulary, badges and bars and also buttons and pins.

The Ebert Lot.—The written report made to the treasurer on the Albert E. Ebert Legacy, December 11, 1909, did not include a lot at Winnetka, Illinois, but a verbal statement mentioned such a lot. The bills for general and special taxes on this lot came to the treasurer and were paid each year until 1915 when it developed that the lot was sold by the executors, October 14, 1912. Owing to the death of one of the executors and also the legal counsel the sale was not reported to the association. When these facts were established, the surviving executor paid the treasurer five hundred dollars ($500.00), the sale price of the lot, and one hundred and nineteen dollars and eighty-one cents ($119.81), the amount of general and special taxes paid by the Association since the lot was sold. These sums have been added to the Ebert Legacy Fund (J. A. PH. A., vol. v, p. 648).

The Ebert Jewelry.—The executors of the Albert E. Ebert estate turned over to the treasurer jewelry which has been valued by two appraisements, one in Chicago and one in St. Louis, at about four hundred dollars. It is too old to sell as jewelry and not old enough to be valued as antiques. The value mentioned is for the old gold and the precious stones. Should the treasurer continue to hold this jewelry or be authorized to sell it?

The A. Ph. A. Button.—This emblem adopted in 1914 was placed on sale in March of that year. It has become very popular and over four hundred have been sold. The treasurer advertises them in his correspondence.

Photographs and Autobiographies of Members.—The Council at the 1915 meeting (J. A. PH. A., vol. iv, p. 1376) adopted the following:

> *Resolved,* That every member of the Association be requested by the treasurer to furnish the historian of the Association a recent photograph and a brief autobiography.

Since the beginning of the present year, I have mailed with each certificate receipt a request that the dues-paid members comply with the above resolution. The historian will report results to date. I think this plan of solicitation should be continued as long as it brings results.

The Collection of Dues.—Eight years ago, the Association was carrying delinquents who owed from one to five years' dues. To-day no one owes for more than eight months. This change was not brought about without some friction and much personal attention to those who look upon the payment of Association dues as a favor to be granted at some convenient time. The officers and more than a score of lay members annually care for lists of local delinquents who are not amenable to the efforts of the treasurer. The general membership intends to be prompt but many are like the man who said:

> Your fifth letter is before me and here is your "V." It is evident that others are often as negligent as I have been. This I regret, for your always courteous manner deserves prompt attention to your bills.

Some fail to comprehend the conditions of membership or the obligation of the treasurer to prosecute each account to a conclusion. I can best illustrate this fact with a few quotations from delinquents who had heard from the treasurer many times.

1. "I joined for only one year. Let me alone."
2. "If I wanted to be a member, I would have paid the first bill. Can't you take a hint?"
3. "You have no claim on me, for I never paid a cent. Some one put up for me. Your letters annoy me."

4. "You must enjoy dunning. Well, I have had enough of it and will not open your next letter."

5. "I am afraid you will use up all of the postage in St. Louis, so I write to tell you I have no desire nor intention of remaining a member."

The Certificate Form of Receipt for Dues.—This document, 8½ × 5½ inches was adopted in 1912 in lieu of the ordinary receipt formerly used. Many members frame and display their annual certificates. Since these certificates are serially numbered, the treasurer can at a glance tell how many members have paid their dues. At this date, I have issued 2075 certificate receipts for 1916 and eighty-nine for 1917. One member has paid for 1918.

Residence Unknown Members.—The treasurer is in constant touch with the pulse of the membership and is hindered in his work by the "residence unknown" members. The office of the Surgeon-General supplies some addresses. The secretaries of the state boards of pharmacy are frequently consulted and render useful information. The itinerant character of our membership is indicated by an average of one percent of the total number being on the "residence unknown" list.

Life Members.—The payment of dues for thirty-seven consecutive years (by-laws, Chap. VIII, Art. IV) places a person on the life membership list. Ten thus became life members in 1916, making a total of one hundred and twenty-eight (128) who receive all of the benefits of contributing members. At the present time when the expenses equal or exceed the income from the Association dues the life members cost about one thousand dollars per year. The interest on the Life Membership Fund, established in 1870, is about seven hundred dollars per year. This is available for current expenses during the year (Const., Art. IV), but none has been so used since the two years 1900 and 1901. The last fee paid into the fund was in 1913. The Life Membership List has nearly doubled the past ten years. Should the by-laws be amended?

Life Members, Old Style.—Under the old constitution, prior to 1887, it was customary to elect a class of life members who did not receive any of the publications of the Association. This has been continued by occasional elections during more recent years. We now have thirteen such names on the list. They are of no expense to the Association. The treasurer writes them annually to make certain that the list is correct.

The A. Ph. A. Membership, August 15, 1916, numbered 2585, which is fifty more than on July 29, 1915. The present membership consists of 2436 active and 149 non-paying members. The non-paying are eighty honorary, thirteen life, old style, and 128 regular life members. During the above period, we have suspended 189, while 161 have resigned and 38 were lost by death. This is a total loss of 388 members since July 29, 1915.

Auditing the A. Ph. A. Accounts.—General Rules of Finance Nos. 7, 8, 9 and 10 relate to the auditing of the accounts of the Treasurer and of the General Secretary. It would facilitate the work if these officers were given to the fifteenth of February instead of the fifteenth of January in which to close the books for the auditors. This will give time for the return of bank checks. The heaviest payment of dues comes in January and increases the work at that time. Chapter V, Article IV, instructs the treasurer to present his report for auditing at the annual meeting of the Council. This obsolete By-law is very old and should be revised to accord with the Rules of Finance and the present order of procedure. I also suggest that, since the editor of the JOURNAL handles much more money than does the General Secretary, his books and accounts be audited. The following reports are submitted in conformity with the Rules of Finance.

REPORT OF THE A. PH. A. AUDITING COMMITTEE FOR 1915.

To the Officers and Members of the American Pharmaceutical Association:

We have examined the books of Henry M. Whelpley and William B. Day, respectively Treasurer and General Secretary of the American Pharmaceutical Association for the fiscal year 1915, and compared the records with the vouchers and found them correct. We have found a proper accounting for all of the funds of the association. The cash balance to January 1, 1916, corresponds with the books of the International Bank of St. Louis and the Massachusetts State and the St. Louis City registered bonds and the International Bank of St. Louis certificate of deposit in the hands of Treasurer Henry M. Whelpley.

Auditing Committee,
Otto F. Claus, *Chairman.*
F. G. Uhlich.

St. Louis, Mo., April 12, 1916.

REPORT FOR 1915 A. PH. A. INVESTED BONDS.

St. Louis, Mo., April 12, 1916.

To the Officers and Members of the American Pharmaceutical Association:

We, the undersigned, have, in accordance with Rule 8 of General Rules of Finance, examined the securities contained in the Association Box (No. 4227) at the Title Guaranty Trust Co., St. Louis, and found the following:

Ebert Legacy Fund Bond.

1 St. Louis City Registered 4 percent Bond (No. 766)	$2000 00

A. Ph. A. General Fund Bonds.

5 St. Louis City Reg. 4 percent Bonds (Nos. 705, 706, 707, 708, 709)	$5000 00
1 St. Louis City Reg. 4 percent Bond (No. 717)	5000 00
Total	$10,000 00

A. Ph. A. Centennial Fund Bonds.

1 Massachusetts Registered 3 percent Bond (No. 1705)	$1000 00

A. Ph. A. Life Membership Fund Bonds.

1 Massachusetts State Registered 3 percent Bond (No. 1701)	$10,000 00
3 Massachusetts State Reg. 3 percent Bonds (Nos. 1702, 1703, 1704)	3000 00
Total	$13,000 00

A. Ph. A. Procter Monument Fund.

Certificate of Deposit No. 63,008, dated December 31, 1915, International Bank of St. Louis (Due June 30, 1916) (Principal)	$5004 96

H. M. Whelpley. *Treasurer.*
Otto F. Claus, *Member, Auditing Committee.*

Subscribed and sworn to before me this 22nd day of August, 1916.

(Seal) John R. Bircher,
Notary Public, City of St. Louis.

My term expires January 19th, 1920.

The Year-Book.—The membership does not fully understand that the Year-Book cannot be published during the current fiscal year, as it represents the entire twelve months and cannot be closed during the year of the date it represents. Some wonder why the Year-Book for 1916 has not been published. This is easily explained but it is difficult for the treasurer to satisfy the delinquent who has received a half dozen requests for his 1916 dues but no Year-Book for 1914 or 1915. Some members have said that they complain because we do not give what we promise. One man wrote, "I never look at the Year-Book, but I want all that is coming to me before I pay my dues to the polite but persistent treasurer." The Year-Book, including the salary of the Reporter on Progress of Pharmacy, costs more than one-third of the income from annual dues. The printing of both the 1914 and the 1915 volumes this year will bring the series up to date and add about three thousand dollars ($3000.00) to the expense account, which sum should have been an item in the budget of a previous year, when no year-book was printed. The income from the sale of year-books and proceedings thus far this year amounts to thirty-six dollars and forty-five cents ($36.45). It should be remembered that the Reporter on Progress of Pharmacy has, on a salary reduced from twelve to six hundred dollars, prepared two instead of one year-book since his election at the 1915 meeting.

The A. Ph. A. Journal.—The Bulletin of the A. Ph. A., established in January, 1906, and published without advertisements, became the JOURNAL OF THE A. PH. A. in January, 1912. It was placed on a subscription and advertising basis. It was understood at the time of the change from a bulletin to a journal that the enlarged periodical would combine the PROCEEDINGS and the BULLETIN. Also, that the income from advertising would at least cover the expense of publishing and editing the JOURNAL. Editor E. G. Eberle has materially increased the volume of advertising for 1916 but the net expense of the JOURNAL for this year will be about one-third of the Association income from annual dues. The JOURNAL as well as the Year-Book is of material aid to the treasurer in collecting dues. The extent to which it is valued by the members is indicated by the fact that we have only thirteen who do not subscribe for the periodical. Most of these "dues only" members have access to the JOURNAL coming to a relative or partner who pays the full fee of five dollars per year.

The A. Ph. A. Income.—Since the establishment of the JOURNAL, the Association has had three main sources of income. First, the annual dues; second, advertisements in the JOURNAL; third, the net profit on the National Formulary. Since it has been decided to add the National Formulary earnings to the Endowment Fund, that steady income is no longer available for general expenses. The volume of advertising business is increasing without materially adding to the JOURNAL expenses. With an increased membership, the value of advertising space will be greater and the JOURNAL may eventually become almost self-supporting. Increased membership adds some to the overhead expenses of the Association but in a much greater proportion to the net income. A greater membership will thus directly and individually increase the two main sources of revenue, which now are dues and advertising.

The A. Ph. A. Account for 1916.—The receipts thus far for 1916 exceed the disbursements by $4138.18. Of this amount, $1000.00 is in payment for the use of N. F. IV text and is not available for Association expenses. We may receive $1000.00 more from annual dues. The amount depends largely on the number of new members. The income from advertising will about meet the expense of printing and mailing the JOURNAL. The expense for the rest of the year, if only one Year-Book is published, will include $3000.00 for Year-Book No. 3, $2500.00 for salaries and perhaps $1500.00 for other expenses. With $4000.00 to meet this total of $7000.00, we are likely to be about $3000.00 short by the end of the year. This does not take into consideration the $10,000.00 of current fund now in St. Louis bonds nor the $700.00 interest on the Life Membership Fund, both of which are available for current expenses, but the treasurer cannot use them without authority from the Council. A deficiency at the close of 1915 was avoided by carrying over some of the bills until the dues for 1916 became available. The rough estimate I have made does not contemplate using any of the income from the N. F. IV.

The A. Ph. A. Assets.—The funds grow steadily and the association has a better cash balance than was reported on January 1.

Permanent Funds.

Life Membership Fund	$21,611 46
Centennial Fund	2908 10
Ebert Prize Fund	1105 94
Endowment Fund	6434 61
Ebert Legacy Fund	4086 65
Total Permanent Funds	$36,146 76
Cash on hand	4225 43
Bonds which belong to Current Fund	10,000 00
Total Current Funds	$14,225 43

Funds Held in Trust.

College Prize Fund	$37 68
Procter Monument Fund	7878 15
Rice Memorial Fund	174 81
Total Funds Held in Trust	$8090 64
Current Fund	14,225 43
Permanent Funds	36,146 76
A. Ph. A. Assets	$50,372 19
Funds Held in Trust	8090 64
Total	$58,462 83

Since my annual report (Journal A. Ph. A., vol. v, page 649) the Current Fund has increased by $4,138.18. The Permanent Funds are $742.52 larger so the A. Ph. A. is $4,880.70 richer in assets than on January 1, 1916.

For convenience in studying the financial situation, I submit a summary of the receipts and disbursements from the first of the year to the date of August 28, 1916.

A. Ph. A. Receipts from January 1 to August 28, 1916.

Cash on hand January 1, 1916			$87.25
Annual dues and Journal, 1914	$15 00		
Annual dues and Journal, 1915	380 00		
Annual dues and Journal, 1916	8265 00		
Annual dues and Journal, 1917	455 00		
Annual dues and Journal, 1918	5 00		
Annual dues and Journal, 1916 (January 1, 1916, to July 1, 1916)	7 50		
Annual dues and Journal, 1916 (January 1, 1916, to April 1, 1916)	1 25	$9128 75	
Dues only of the A. Ph. A., 1916		52 00	
4 Paper Certificates of Membership at $3.00		12 00	
National Formulary III		582 24	
National Formulary IV		1000 00	

Proceedings and Year Book		$36 45	
Journal Advertising		3451 27	
Journal Subscription		151 45	
Interest on St. Louis Bonds in Current Funds	$400 00		
Interest on deposits in International Bank of St. Louis	50 15	450 15	
Bank Exchange paid by Members		74	
Reprint, Journal		8 00	
Sale of 9 Gold Membership Buttons @ $1.00	9 00		
Sale of 19 Plated Membership Buttons @ 25 cents	4 75		
Sale of 7 Gold Membership Pins @ $1.00	7 00		
Sale of 5 Plated Membership Pins @ 25 cents	1 25	22 00	$14,895 05

Cash Received and Placed in the Funds.

Centennial Funds (Int. on Massachusetts State Bonds)	$30 00		
Life Membership Fund (Int. on Mass. State Bonds)	390 00		
Ebert Legacy Fund (Int. on St. Louis Bonds)	40 00	460 00	

St. Louis International Bank Interest on Funds from January 1, 1916 *to August* 25, 1916.

Ebert Legacy Fund	$34 60		
Procter Monument Fund	46 65		
Rice Memorial Fund	1 55	82 80	542 80
Receipts from Jan. 1 to Aug. 27, 1916		$15,437 85	
Total			$15,525 10

Summary of A. Ph. A. Disbursements January 1 *to August* 28, 1916.

Salaries	$4733 36	
Journal	3828 65	
Printing, Postage and Stationery	618 11	
Clerical Expenses	272 00	
National Formulary III	131 84	
National Formulary IV	533 70	
Drayage Freight and Express	2 46	
Miscellaneous Expenses	245 17	
Badges and Bars	14	
Journal for Reporters on Progress of Pharmacy	19 96	
Committee on Membership	188 54	
National Drug Trade Conference	99 18	
Section on Scientific Papers	7 00	
Committee on Unofficial Standards	30 92	
Recipe Book	10 50	
Section on Education and Legislation	11 75	
Year Book	6 74	
Women's Section	16 85	$10,756 87

Cash Received and Placed in the Funds.

Centennial Fund	$30 00	
Life Membership Fund	390 00	
Ebert Legacy Fund	74 60	
Procter Monument Fund	46 65	
Rice Memorial Fund	1 55	542 80
Total Disbursements to August 28, 1916	$11,299 67	$11,299 67

SEVENTEENTH ANNUAL MEETING OF THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES

The seventeenth annual meeting of the American Conference of Pharmaceutical Faculties convened in Philadelphia September 1, in the Philadelphia Bourse. Howard B. French, president of the Philadelphia Chamber of Commerce, spoke the words of welcome, and the response was made by President H. V. Arny, of the Conference. The succeeding meetings of the Conference were held in the Rittenhouse Hotel.

ADDRESS OF PRESIDENT H. V. ARNY.

INTRODUCTION.

The admirable address of my distinguished predecessor in the chair of the American Conference of Pharmaceutical Faculties so fully covered the field of thought coming within the sphere of the activity of the Conference, that apparently he left but scanty gleaning for his successor. And even here our good friend, Dean Wulling, had a thought as to the gleaning, since the recommendations made in his address resulted in the creation of a number of committees designed to carry out the policies so strikingly enumerated by him. In fact, the present chairman said to a friend upon his election to the presidency of the Conference that his position would be largely of the nature of a sinecure, since Dean Wulling's address not only covered the problems of the Conference up to the time of the San Francisco meeting, but had also provided material for discussion for several years to come.

However, events occurring during the past twelve or thirteen months have brought new problems, and these we must face and discuss at this, the 1916 meeting of the Conference. The matters brought up by my predecessor will be well handled in the reports of the several committees appointed for the purpose, so your chairman will deal largely with the events of the past year. Of these, the most important are:

(1) The passage by the Ohio legislature of a "prerequisite" law, effective July 1, 1917, demanding as preliminary education the successful completion of two years of high school work.

(2) The passage, at the San Francisco meeting of the National Association of Boards of Pharmacy, of a resolution expressing the opinion that, after 1920, candidates for registration as pharmacists should be graduates of a high school and of a recognized college of pharmacy.

(3) The filing by the representatives of the Pharmacy Council of the State of New York, at the close of the last session of the Conference, of a protest against the resolution that, beginning in 1917, pharmacy colleges should require 30 counts for entrance. Since that time, the New York law has been so amended that the 30-count requirement will be effective after January 1, 1918.

(4) The inauguration in a technical high school in the central west of a course in pharmacy as the third and fourth year of the high school course.

(5) The issuance of the ninth edition of the United States Pharmacopœia and of the fourth edition of the National Formulary.

(6) The establishment in this country of a Fairchild Pharmaceutical Scholarship.

Widely remote though the six topics mentioned above may seem, there is a connection between them that is so direct that they may be discussed together. In most of their phases, the topics apply more forcibly to the internal affairs of the Conference, but from several points of view they have a distinct bearing upon the relations of the Conference with the Association of Boards and with our parent organization, the American Pharmaceutical Association. Let us first consider what Dean Wulling aptly termed:

THE CONFERENCE AND ITS INNER RELATIONS.

HIGH SCHOOL COURSES IN PHARMACY.

Of the six topics mentioned above, none is of more vital importance than is the establishment, in a technical high school in Detroit, of a 1300-hour course in pharmacy. This action—the inauguration of pharmacy courses in high schools—is, in my opinion, a matter of as great moment to the Conference, and to Pharmacy as a whole, as the institution of courses of pharmacy in state universities almost a half century ago has already proven itself to be. The facing of the situation at this time in a predetermined spirit of antagonism will, in my opinion, prove as futile as was the opposition shown the representatives of the university schools of pharmacy when they first appeared as delegates at meetings of The American Pharmaceutical Association. Turning to pages 29 and 47 of the *Proceedings* of that Association for 1871, it is interesting to note that the first delegates accredited to the Association were rejected by unanimous vote after the presentation of a report of a committee consisting of sixteen of the most prominent members of the Association, which declared:

> The University is not, within the proper meaning of our Constitution and By-laws, a College of Pharmacy; it being neither an organization controlled by pharmacists, nor an institution of learning which, by its rules and requirements, insures to its graduates the proper practical training to place them on a par with the graduates of the several colleges of pharmacy represented in this Association.

Still more interesting is it to note that the leader of the rejected delegation was, about one-quarter of a century later, honored with the presidency of the association which had declined to receive him in 1871.

The introduction of university pharmaceutical training did not injure the pharmaceutical body as much as the above report considered it would, and we meet to-day, happy in the thought that our Conference offers the opportunity for the representatives of university schools and the independent colleges to meet in harmonious discussion. We may differ as to exact methods of procedure, but we are one in our aim to benefit Pharmacy of to-day and to improve Pharmacy of to-morrow by our work in the class-room, in the laboratory and in the busy world. But how about the new "intruder," the technical high school, as a competitor in the field of pharmaceutical instruction?

In the past, some representatives of the independent schools of pharmacy have characterized the university school of pharmacy as a more or less unfair competitor, inasmuch as the latter institution has support from the state and is, therefore, able to meet financial conditions that are not attainable by those institutions supported by instruction fees. If the pressure is felt when there is scarcely more than one competitor of the character in each state, how much more serious will be the competition if technical high schools, now found in practically every large city, enter the field of pharmaceutical education?

This is not the time to discuss the encroachment of the modern high school upon the field of college endeavor, but I cannot resist the temptation to suggest as a simile the fact that, even as the new boy in the drug store prefers prescription work to his regular duties, so the average high school teacher seems obsessed with the idea of giving his pupils a spurious college course rather than a genuine high school training. How far these activities are going to be permitted, especially along technical lines, the future alone can tell. But what we, as pharmacy teachers, are interested in is the fact that every technical high school, with its fine plant, its modern equipment and its staff of teachers paid by the tax-payers of the community, is a potential competitor of the already existing colleges of pharmacy.

What shall be done in the matter? Shall we use our influence to curb this new aggression, or shall we extend to the pharmacy high schools the right hand of fellowship?

The direct answer to this question is one that should be given by the Conference, not by an individual delegate.

The following thought, however, is thrown out by way of suggestion. The entrance of high schools into the field of pharmaceutical education makes our problem a triangular one in which the three corners are the independent college, the university college, and the high school. Looking around for a standard of comparison, we might compare the pharmaceutical educational situation with the present-day status of so-called business education. In that field, we have (*a*) the independent commercial colleges, many of which are serving a distinct need at profit to the promoters; (*b*) the commercial high schools, which, by the way, do not appear to have made as great inroads into the field of private teaching as was originally predicted; (*c*) the schools of business of the universities, which are designed to train business *thinkers,* rather than stenographers, typists and bookkeepers. In business, there seems a need for the three classes of educational institutions enumerated above. In pharmacy, it has already been demonstrated that the university course and the independent college course can exist side by side; and the future will show us whether the high school course will prove its fitness to survive. Now the question before us is whether there is not room in our Conference for the three classes of institutions just enumerated.

At the San Francisco meeting, the Conference created a new committee (denominated on page 214 of the *Proceedings* of 1915 as Committee No. 3) which was directed to study the advisability of establishing two classes of membership. While the "two classes of membership" referred to meant our present members and those outside the Conference who have not yet come up to our minimum requirements; while the report presented at this meeting will undoubtedly deal with that problem only; the question occurs to me whether Committee No. 3 should not be continued and requested to study the problem of three classes of our own membership, chiefly to bring about a discussion of this topic:

> I RECOMMEND that Committee No. 3 be continued and be requested to study (*a*) the status of those high school courses which comply with all of the requirements of our Conference; (*b*) the advisability of eventually creating within the Conference three sections, one participated in by university schools, one by such high schools as may hereafter be admitted into the Conference, and one consisting of the independent colleges; the three sections to hold general sessions for discussion of matters of general interest and for the transaction of the routine business of the Conference; each section to hold special sessions for the discussion of topics peculiar to the institution composing the section.

In studying the problem of courses in pharmacy given by technical high schools, we should apply to these institutions three tests: (*a*) Will they fill a particular need? (*b*) Will they conduct efficient courses? (*c*) Will they demand sufficiently high requirements?

As to the need, I think that all of us present agree that what Pharmacy needs is not more schools, but better ones. There will be no debate on the subject of "a long-felt-want," provided we of this Conference do not create a need by pulling ourselves over the heads of our clients.

As to the efficiency of courses offered, that also is within our hands. Admirably equipped though our modern technical high schools are, they cannot compete in that respect with many of the schools represented in our organization. Again, there are many interested in pharmacy who are old-fashioned enough to believe that pharmacy schools should be run by pharmacists and not by high school teachers, and to those the present type of independent colleges of pharmacy will ever appeal.

As to requirements, let us honestly face the fact that the one high school course so far offered has a technical advantage that is worthy of the most careful consideration of this Conference. This 1300-hour course represents the third and fourth years of the regular high school courses, whereas the present minimum requirement of this Conference is a two-year course of 1200 hours of work based on preliminary education of one year of high school "or its equivalent."

Are those of us who are following this minimum requirement merely running a second and third year of a high school course? Or are we conducting trade schools like business colleges, or printing schools or electrical schools? In either event, are we in a position to criticize the courses offered by the technical high schools?

THE CONFERENCE'S 1917 RESOLUTION.

On top of this comes the resolution submitted by the New York Pharmacy Council during the closing hours of the last meeting of the Conference, expressing disapproval of our action taken in Detroit concerning an entrance requirement of two years of high school work by September, 1917. In the opinion of your chairman, the rescinding of the two-year entrance requirement for 1917, passed by the Conference at its Detroit meeting of 1915, would be an open avowal of the fact that the Conference stands for courses inferior to those now proposed by technical high schools, and to thus meet what may eventually turn out to be real competition would be the height of folly. It will also be recalled that, at its session of 1915, the Ohio Legislature passed a prerequisite law which anticipates the Detroit resolution by one year. That is, the two-year preliminary high school education, as well as the diploma of a college of pharmacy, will be demanded of all candidates for registration who apply after July 1, 1917. In other words, all colleges wishing their graduates to register in Ohio after July 1, 1917, will have to demand two years of high school experience from those matriculating this fall. Lastly, on the twenty-sixth of last April, Governor Whitman signed a bill passed by the New York Legislature which so amends the pharmacy law of that State that, after January 1, 1918, matriculants at pharmacy schools recognized by the board of regents must show a preliminary education representing 30 academic counts. This confusion seems still another reason why we should stand to our original resolution, and, in order to bring the proposition squarely before the Conference,

I RECOMMEND that the Detroit resolution of 1915, relative to an entrance requirement of two years of high school work in September, 1917, be reaffirmed.

THE N. A. B. P. 1920 RESOLUTION.

Germane to the subject just discussed is the resolution, passed at the San Francisco meeting of the National Association of Boards of Pharmacy, expressing as the aim of that organization prerequisite legislation in all states by 1920 based on four years of high school training and graduation from a reputable college of pharmacy.

This is the goal toward which the eyes of all of us interested in the future of Pharmacy have been turned for many years past and of its ultimate accomplishment there is no doubt. Particularly happy should we be that it is the men who enforce pharmaceutical legislation who have taken this advance step. We of the Conference have talked much about such a move, but legislative action is difficult of accomplishment unless the board of pharmacy in each state is with us and unless the registered pharmacists of each state are behind the board.

As said above, the ultimate securing of prerequisite legislation, based upon college graduation preceded by four years high school training, is merely a question of time, coupled with patient and persistent work. Whether our brethren of the association of boards are over-sanguine in declaring 1920 the time for bringing about the reform, we have yet to see.

The reformer must, of course, be years ahead of the mass of the people, but if the reform itself is too far ahead of the people, it will defeat its own purpose. In the present instance, are the registered pharmacists of to-day yearning for a four-year high school, two-year college of pharmacy law?

On this point, there is a vast difference of opinion. We have heard at previous meetings of this Conference that the drug trade is ready for the change; we have read that the N. A. B. P. resolution of last year was passed only after a most vigorous discussion. There is but one way to arrive at the point where we can view the situation in its true light and that in a way appropriate to the democratic spirit of our land. Therefore,

I RECOMMEND the appointment of a joint committee from this Conference and from the Association of Boards, which shall endeavor to secure the co-operation of the legislative committee of each state pharmaceutical association in arranging for a referendum postal card vote on the subject, participated in by all of the registered pharmacists of the state in question.

THE NEW UNITED STATES PHARMACOPŒIA.

The ninth edition of the Pharmacopœia of the United States has been in our hands only long enough to furnish us profound food for thought. I think it is agreed by all teachers of pharmacy that their main duty is to train their pupils to understand and to make intelligent use of our national standard. If this aim is to be maintained, as far as the new Pharmacopœia is concerned, we must certainly insist on a four-year course of instruction. Taking merely the chemical side of the work, how can a man intelligently conduct the volumetric, gravimetric, electrolytic and polariscopic tests prescribed for official substances, unless he has had thorough training both in laboratory and in classroom in the principles of physics and of chemistry underlying the particular operation?

As an individual teacher, I feel that the best we can do in a two-year course is to train the student to have a general acquaintance with the Pharmacopœia, but if we wish our students to have a genuine mastery of our standard, at least four years of study is essential; in short, while two years may suffice for the *kennen,* at least four years are demanded for the *wissen.* And this difference pervades the whole of American pharmacy. The average registered pharmacist is becoming a mere vendor, chiefly because he is a *peruser* of the Pharmacopœia rather than a *user* of it. We of the colleges turn out many graduates in pharmacy of whom it may truthfully be said that they have the "know about" of the Pharmacopœia, but only few who have a real knowledge of our national standard.

To resume the simile used above, a business man wishing a stenographer who can do a little bookkeeping does not call up the school of commerce of the local university for such help; neither does the president of a huge corporation requiring a departmental head turn to the business college for a man to fill the bill. If we delegates to this Conference realized this difference in aims: if we more fully recognized the distinct need for two types of training in pharmacy; if we considered these two types as separate and distinct propositions; if we did not try to masquerade the lesser training in the garb of the higher; if we could consider the higher training without unduly encumbering the lesser training; we would solve our problems with a smaller amount of friction than has been shown at times in our past history.

OUR COMMITTEES.

So fully did my predecessor cover the routine needs of this Conference that the only matter connected with the administration of our affairs that occurs to me relates to sixteen committees that it became my duty to appoint.

Up to this year, the affairs of this Conference have been conducted by the Executive Committee and by occasional special committees. Thus, last year the only special committees in operation were one on teaching methods; one on teachers' salaries; one working in conjunction with a similar group from the Association of Boards on examination questions; and, last but not least, even though it was omitted from the list of committees printed in our last *Proceedings,* one delegated to arrange the program for the joint meeting of our Conference and the Association of Boards. The highest compliment that could have been paid Dean Wulling was the action of the Conference in creating ten new committees to deal with topics discussed in his presidential address. By way of passing, it might be mentioned that this compliment brought upon the incoming president the embarrassing task of selecting fifty-one committee members from among the forty to fifty delegates who have attended a sufficient number of our meetings to have become familiar with the work of the Conference. The result was the drafting of several of our members upon more than one committee. To the credit of our personnel, but two declinations were received and in each case the reason was so sound that the declination had to be accepted. Dean Johnson, because of uncertain health, had to ask to be relieved of the chairmanship of Committee No. 9, and requested Dr. Diekman, the second ranking member, to serve in his stead. Dean Wulling, for equally good reasons, declined to serve as chairman of the joint committee on the definition of a proprietary medicine created at the session of the A. Ph. A. Section of Education, of the Conference and the Association of Boards, and your chairman decided to appoint in his stead our friend, Dr. J. H. Beal, former president of the Conference, even though he is not at the present time actively engaged in teaching.

Dr. Beal kindly consented to serve, was made chairman by the joint committee (which consisted of three members from the Conference and three members from the National Association of Boards of Pharmacy), and has submitted an admirable report which will be heard by us later.

This incident brings us to a consideration of a modification of the national question: "What will we do with our ex-presidents?" In our case the problem is the utilization of the talents of those no longer active in the Conference because they are no longer actively engaged in teaching. The complication comes from the fact that not one of us present to-day is a member of the Conference. We are here because the colleges we represent are members of the Conference and so soon as any one of us is no longer delegated to represent a member of the Conference, that one of us has officially no standing in our organization. In many cases, notably in the case just cited, the Conference may lose the services of one of its most valued workers and if the idea of committee administration is to continue it is imperative that the status of former delegates be defined. A similar problem in the National Association of Boards of Pharmacy was met by the creation of a list of associate members.

Reading our constitution, I find that the only mention made of individuals interested in the Conference is in Article 3, "Pharmaceutical Faculties represented by delegates"; in Article 5, "properly accredited delegates of any faculty shall have the right to engage in debate"; and in Article 7, where it says that "the Executive Committee shall consist of the President and the Secretary-Treasurer as ex-officio members and five *legally accredited delegates* elected by ballot." In order to open discussion of this matter,

I RECOMMEND that a new article be inserted in the Constitution discussing the personnel of committees and directing that the President select as committee members only those persons who have been legally accredited delegates to the Conference at least twice during the five years preceding the appointment.

A study of our sixteen appointed committees shows that some may be able to report at this session and then ask for a discharge; that others might well be consolidated (example, the program committee and the committee on teaching methods), while others are important enough to be made into standing committees. Even those of us who have given the matter some thought cannot decide offhand how each of our several committees should be handled and therefore,

I RECOMMEND that the next President be directed to appoint a special committee or committees which shall study the nature of the sixteen special committees now extant, and which, after such study and after consultation with the chairmen of these committees, shall decide which of these shall be made standing committees.

I FURTHER RECOMMEND that the new section of the Constitution, suggested above, shall give the list of standing committees, as decided upon by the committee on committees.

I FURTHER RECOMMEND that in future issues of the Proceedings of this Conference the list of committees be placed in the front of the book immediately following the page devoted to the list of officers.

THE CONFERENCE AND ITS OUTWARD RELATIONS.

In discussion of the Conference and its inner relations, several topics have been handled that could well be considered as problems connected with the outward relations of the Conference.

The extremely high quality of the new edition of the United States Pharmacopœia might be considered, as well by the Association of Boards in connection with the discussion of examination questions as in the cloistered seclusion of the Conference, while the recommendations made concerning the 1920 prerequisite resolution passed by the Association of Boards at their San Francisco meeting will, if approved by the Conference, have to go before the Association of Boards for ratification. Of the six events of the past year recorded in the introduction to this address, but one has been reserved for this section referring to the outer relations of the Conference: The generous donation made by Mr. Samuel W. Fairchild for the establishment of a pharmaceutical scholarship.

THE FAIRCHILD SCHOLARSHIP.

It will be recalled that in his address delivered last year in San Francisco President C. A. Mayo, of the American Pharmaceutical Association, announced the founding, by Mr. S. W. Fairchild, of a pharmaceutical scholarship, similar to the one founded by him in England several years ago. This scholarship, by the terms of the gift, is to be administered by a commission consisting of the president of the American Pharmaceutical Association, the president of the National Association of Boards of Pharmacy, the president of the American Conference of Pharmaceutical Faculties and the Editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. It will therefore be seen that three organizations—one of them the Conference, another the Association of Boards—are interested in this scholarship, and especially at the present time of laying the foundations for future administration of the gift should we give the matter our serious thought. The report of the commission will be presented for our consideration by its chairman, Dr. W. C. Alpers, during this session, prior to final action being taken on it at the joint session of the Section of Education and Legislation of the American Pharmaceutical Association with the Association of Boards and the Conference of Faculties, scheduled to be held on September 6; hence details should be deferred until we hear from Dr. Alpers. What we might profitably discuss at our present session is how the gift can be best administered, not merely to the advantage of the beneficiary of a certain year, but for the betterment of pharmaceutical education, the latter phrase being used to imply either the work of the college or of the board. In England, the candidates compete on the basis of general qualifications as shown by credentials backed up by a competitive examination. It is the opinion of the writer that, if the competitive examination idea obtains as far as the American Fairchild Scholarship is concerned, it should be under the auspices of the joint examination committee of the Association of Boards and of the Conference; that it should foreshadow the coming union examination toward which we are all striving, and that each organization should see that its president, as a member of the commission, does his best to bring such action about.

OUR JOINT COMMITTEE ON EXAMINATION QUESTIONS.

Of the many services rendered to American Pharmacy by the Conference and by the Association of Boards, none is more valuable than the labors of the joint committee on examination questions created by the two organizations. The future of pharmacy rests largely upon the quality of those now entering the ranks of registered pharmacists, and if we keep proper watch at the gate we will have less trouble among those within the fold. That the present haphazard methods of examination of candidates must give way to more orderly procedure, the Association of Boards has already decided; that the teachers are willing to cooperate to the utmost extent is shown by the action of the Conference in participating in the joint committee on questions.

It was a matter of great regret to me that I was unable to attend the meeting of this joint committee that was held in Chicago on the ninth of March, but the Conference was ably represented by Messrs. Beal, Clarke, Day, Dye, Jordan, Koch, Long and Snow. As the joint committee will report on its work very shortly, there is no need for its findings to be anticipated in this address.

UNION EXAMINATIONS AND RECIPROCITY.

But while we are on the subject it might be well to point out that callings other than ours are interested in the subject of uniform examinations, and that at least one allied branch is attempting to solve the subject in a manner which may be utilized by the National Association of Boards of Pharmacy. The American Medical Association has interested itself in the subject of medical licensure examinations and through its efforts with the co-operation of the United States Government, acting through the medical officers of the Army, the Navy and the Marine Hospital Service, a National Board of Medical Examiners has been established. Those obtaining the certificate of this National Board will, as yet, have no legal rights, but it is assumed that one by one the several states will permit their medical licensing boards to accept the certificates of the National Board in lieu of an examination, and thus a properly trained and qualified practitioner will be permitted to become a licentiate in several states without repeating examinations.

From what we hear, the reciprocity idea, developed by the National Association of Boards of Pharmacy, is meeting each year with more and more success. Pharmaceutical reciprocity does not, however, by any means obtain throughout the breadth of this country, and perhaps the last hindrances to truly national reciprocity may be overcome by the application of the principle of the National Board of Medical Examiners by a similar national board of pharmaceutical character.

A novel proposition which might ultimately be utilized in the development of the union examination idea is the suggestion of M. I. Wilbert, concerning federal pharmaceutical licenses for the handling of narcotics and of alcoholic preparations. The several phases of Dr. Wilbert's proposition are: (*a*) The establishment of one federal license permitting pharmacists to sell narcotics and alcoholics, thus relieving the druggist of the odium of being considered by the Internal Revenue Bureau as a retail liquor dealer; (*b*) the granting of the new certificate, not indiscriminately but only to those pharmacists who are equipped to practise Pharmacy and possess high acquirements in the way of educational credentials and in actual knowledge shown by examinations. In short, the licensed pharmaceutical handler of narcotics and alcoholics will be placed upon a civil service basis; (*c*) such federally licensed pharmacists would be the products of a federal examination conducted by a federal board under the auspices of the Civil Service Commission and as such could eventually obtain registration as pharmacists within the several states, by virtue of having passed the federal examination.

This plan, while highly suggestive, presents several difficulties. In the first place, from what we hear, it will require much work to secure the legislation permitting a joint license for the sale of alcohol and narcotics, since the Internal Revenue officers want to hold all they now have. From the pharmaceutical standpoint, while those wishing narcotic-alcoholic licensure may be willing to submit to a federal examination which, at the present time, would mean a second examination, the plan savors too much of compulsion to make it popular as a road to union examinations. These, if conducted at all, must be at the option of those who, feeling the advantages of a broader exchange of certificates as registered pharmacists are worth some extra work, voluntarily submit themselves to a special examination.

OUR OTHER JOINT COMMITTEES.

The committee on examinations is not the only group of workers which we have in common with the Association of Boards. First of all, we must mention the joint committee to which we are indebted for the well-planned program of the joint session of the Conference and of the Association of Boards. Then it will be recalled that at the joint session of the Section of Education and Legislation of the A. Ph. A. with the Conference and the Association of Boards held at San Francisco on August 11, 1915, the question of the proper definition of a proprietary medicine was discussed and that it was voted to refer the matter to a joint committee of the Conference and of the Association of Boards. This committee has performed its duty and its report is ready for submission to us at this meeting.

At the joint meeting of the Conference and the Association of Boards held last year, the creation of a joint committee on prerequisite arguments was authorized and we await with pleasure the report that will be brought in. Lastly, the Conference ordered the appointment of a committee to consider with the N. A. B. P., the A. Ph. A. and the N. A. R. D. the desirability of higher educational standards. While this committee has four organizations with which to coöperate, it is highly desirable that we should discuss the topic first with the Association of Boards and then at the joint educational session which will be held next week at Atlantic City.

THE FEDERATION OF PHARMACEUTICAL ORGANIZATIONS.

The subject of a federation of all American pharmaceutical bodies was discussed at some length last year in the address of the president of the Conference, who suggested the appointment of a committee clothed with the authority to initiate the federation movement. This suggestion was approved by the Conference and in appointing this committee, I chose as its leader the man who, during the past few years, has been battling to bring about this highly desirable condition of affairs. Dr. Hynson's report will inspire all of us, I am sure, so I need merely point out that with two such fine nuclei to work with—the joint sessions of the Section on Education and Legislation of the A. Ph. A., of the Conference and of the Association of Boards, on one hand, and the Drug Trade Conference on the other—it should by no means prove an impossible task to crystallize the different groups of drug organization into one splendid unit. But let us remember that ideal crystallization is one of the most uncertain of all physical phenomena.

CONCLUSION.

The last part of this address is delivered at a joint session of the Conference and the Association of Boards. There is no greater privilege that has ever come to me than this opportunity of taking an active part in the deliberations of two such important bodies. As I stand here I look back over twenty-seven years at my first impressions of a faculty—that of my Alma Mater; and of a board—the one but newly organized in my home state. The impression of awe that those two bodies then gave me has given place to familiarity and with the familiarity has come the feeling of affection for the men both of the Boards and of the Faculties who are doing so much to bring Pharmacy into her rightful place.

Last year it was fittingly said that the more we of the Faculties and of the Boards got together, the better we liked each other. We are now bound together in the bond of mutual interest; we have great work that we can perform well only with the help of the other; we are ready to march forward, shoulder to shoulder, enlisted in a common cause—the betterment of Pharmacy.

REPORT OF THE COMMITTEE ON PREREQUISITE ARGUMENTS.*

WILLIAM B. DAY, CHAIRMAN.

INTRODUCTORY.

The dictionary informs us that "prerequisite" means "something previously required or necessary for an end proposed." In pharmacy the term represents a more or less definite preliminary and professional training required of the candidate for the pharmacist's license. In this sense, the meaning of prerequisite is two-fold; it includes not only the professional training in a college of pharmacy, but also the high school preparation which necessarily precedes it.

HISTORY AND PRESENT STATUS.

While the subject of requiring college graduation has been under discussion for many years, it has been only during the last decade that sentiment crystallized to such an extent as to bring about the enactment of prerequisite laws. The first law of the kind went into effect in New York in 1905 and its operation was watched with the greatest interest by the pharmaceutical profession of the country. Pennsylvania followed soon after; then Rhode Island fell into line and, more recently, North Dakota and Ohio have joined the ranks of prerequisite states, while North Carolina, as a compromise, secured a law requiring one year of professional training.

Disappointed in not passing laws framed along these lines, the pharmacists of New Jersey and the State of Washington have obtained the same results through the rulings of their respective state boards of pharmacy, which have, in effect, established the prerequisite in these states. Indeed, as Dr. Wulling pointed out in his presidential address last year, it seems likely that every board of pharmacy has the inherent power of making such regulations as shall insure the proper training of the candidates for license and thus of putting the prerequisite into immediate effect.

In the territory of Porto Rico and the Republic of Cuba the prerequisite is also established by law.

In Illinois, Indiana, Michigan, New Jersey, Virginia and Louisiana, the state pharmaceutical associations have not only endorsed but secured the introduction of prerequisite bills into the law-making bodies, although for various reasons these efforts were not successful. In the last-named State the bill passed the legislature but was vetoed by the governor because of an objection in no way connected with the prerequisite feature. Opposition, not unlooked for, was encountered not only from private quiz schools and correspondence schools but also in some instances from druggists themselves, who failed to grasp the real intent and importance of the proposed legislation.

Frequently the mistake has been made of including in one bill several amendments to the state pharmacy law, each amendment having a different object and each entailing a certain amount of opposition; the opponents of these various amendments were thus able to combine and defeat the bill. Prerequisite amendments should be introduced as such, considered independently and accepted or rejected on their merits.

It is worthy of note that where a referendum vote of the pharmacists of the state has been taken, to secure an impression on prerequisite legislation, the result has been overwhelmingly favorable.

In the Illinois referendum on the prerequisite in 1912, the vote stood 965 for, to 247 against a referendum vote, while in Minnesota, on the same issue, a very recent voting resulted in over eighty percent for the prerequisite.

In addition to the states above mentioned and where prerequisite legislation will again be presented at the coming legislative sessions, the state associations of Colorado, Minnesota, North Carolina and South Carolina have indorsed the prerequisite and will stand sponsor for bills having this for their object at the next meeting of their state legislatures.

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* Annual meeting of the American Conference of Pharmaceutical Faculties, Philadelphia, September 2, 1916.

Turning now to the other phase of prerequisite legislation, the preliminary education, we find that professional training has been linked with a minimum of secondary school preparation in the prerequisite laws of all the states. The New York law, the pioneer in this field, originally required one year of high school or its equivalent as determined by regents' examinations. This was amended at the last legislature so as to increase the high school preparation to two years. Ohio also requires two years, Pennsylvania one, while North Dakota insists upon the full four years of secondary schooling. In Cuba and Porto Rico graduation from high school is required.

In many states where the *professional* training is *not* demanded, the amount of high school preparation is either fixed by law or by the regulations of the board of pharmacy, thus South Dakota and Oklahoma require graduation from high school, Florida, Iowa and Michigan, two years of secondary instruction, and Illinois, Kansas, Missouri, New Mexico, Oregon, Texas, West Virginia and Wisconsin, one year of high school before admittance to the licensing examination.

It is unfortunate that, in practically all cases, the proof of high school training is not required until the candidate completes his drug store experience and is ready for the state examination for qualified pharmacist. In justice to the young men themselves, the high school training should be truly a preliminary requirement and the practical experience required by law should date from the satisfaction of this requirement, preferably by having a system of apprentice registration such as is already in effect in a few states.

The deteriorating effect of low preliminary requirements is now made evident through the action of certain high schools in offering courses in pharmacy, a condition that never would be tolerated in medicine, dentistry or law where the preliminary preparation is a complete high school course or better.

ARGUMENTS FOR THE PREREQUISITE.

1. The strongest argument for prerequisite legislation is that the public welfare demands it. Who would think of employing a physician who is not a college graduate? Yet the knowledge and skill of the trained physician may be nullified by entrusting his prescriptions to an ill-trained pharmacist. The laity are sufficiently informed regarding these dangers but the impression is general that when the state certifies to the training of the pharmacist by granting him a license, he, of course, must be a college-trained man. It is no answer to these arguments to say that self-prepared applicants must pass the same examination as the college man. We know that this does not imply equal proficiency. One has been prepared for life, the other for the examination merely. The college-trained man is a much safer one than is the self-trained. Experience in a drug store is a variable factor, it may mean much or little, but a college course means something definite, or which can be definitely determined by investigating the college. Theory and practical experience are both necessary to make a capable and well-equipped pharmacist. One is not more necessary than the other. Pharmacy laws everywhere require practical experience. It is certainly as important to insist just as strongly on college training. Laws are for the benefit of the people, and their welfare should be the first consideration.

2. It is better for the pharmacist himself that he be a college graduate; in fact, it is an injustice to the young man entering pharmacy not to require it. Both physicians and patrons will have more confidence in the college-trained man; he will have more confidence in himself.

He will have a better appreciation of the value of accuracy and of the importance of seemingly small things. He will be capable of determining the strength and purity of the medicines which he handles. He will understand the importance of having his preparations come up to the standard requirements and will know how to keep them from deteriorating.

3. The general establishment of the prerequisite of college training would add greatly to the professional standing of pharmacists. We all recognize the desirability of legislation that shall restrict the sale of drugs to those whose education and experience fit them for this responsibility. But it will be impossible to secure such legislation until we can demonstrate that the pharmacist is really an educated man. The only means of combating the *dispensing evil* is through the better training of pharmacists themselves. When pharmacists

can show that they are trained specialists in dispensing, *then* they can successfully demand that dispensing be made their exclusive privilege.

4. The prerequisite would lessen to a considerable extent the present ruinous overcompetition and would ultimately enable druggists to have enough business in drugs so that they would have a chance to practise real pharmacy and not be threatened with degeneration into mere dispensers of soda water, candies and sandwiches. There are already a sufficient number of drug stores to satisfy the demand for drugs and medicines until the population is doubled. Why should we add largely to this number by making it easy to enter pharmacy? The newcomers who lack college training have seldom been impressed with professional ideals and are the first to demoralize the business in their efforts to keep going; price-cutting and deterioration of quality, both of drugs and service, follow as a natural consequence. No form of restriction is feasible except that based on higher educational attainments.

5. The prerequisite would result in bringing into pharmacy a better educated and more desirable class of young men and women who would be attracted by its professional character. It can scarcely be expected that high school graduates will enter a calling where they must start on the same footing as boys from the grades. They will naturally give preference to a vocation where their high school education counts for something.

6. The present and future advancement of pharmacy require a better preparation and professional preparation. The sciences underlying pharmacy, notably chemistry, physics, botany and physiology have developed with wonderful rapidity during the last decade. Medicine has also made great forward strides. Pharmacy must keep up the pace, in a measure at least, or lose entirely its identity and its professional status.

7. Prerequisite legislation is bound to come. It is now established by law in five states, including the two largest in population. Nowhere has any serious effort been made to repeal a prerequisite law. Pharmacists in other states are awakening to the fact that public sentiment will eventually demand such laws. Is it not better that pharmacists themselves should initiate laws affecting pharmacy rather than to leave this to outsiders? Let pharmacists have the honor of bringing about the new and better conditions.

ARGUMENTS AGAINST THE PREREQUISITE ANSWERED.

Answering now the arguments that have been advanced against the prerequisite at various times, these are, in general:

1. *That the prerequisite would impose a hardship on those clerks who have already entered pharmacy and have spent some years in learning it.* This argument is based on a misconception. All prerequisite laws have allowed a reasonable time for those already in the business to qualify and in most instances this allowance has been exceptionally liberal.

2. *That it would greatly increase the wages of drug clerks.* The operation of the prerequisite laws in New York, Pennsylvania and Rhode Island has not borne out this contention. There has been some increase in wages, comparable to the general increase in living cost, but this has not been proportionately more in New York with a prerequisite law than in Illinois without one.

3. *That it would subordinate the boards of pharmacy to the colleges.* Some opponents of the prerequisite have made much fuss about the fearful results of turning over the boards of pharmacy to the colleges. Of course this is mere claptrap. Where prerequisite laws are in effect, the boards effectively control the schools and check upon their work.

4. *That the prerequisite is urged by the professors and does not represent the views of retail druggists.* This has already been answered in another part of this report. Referendum votes in Illinois and Minnesota, the only states where such votes have been taken, show that four-fifths of the druggists favor it.

5. *That it would keep the "poor boy" out of pharmacy.* At the present time, when the opportunities for education are so numerous, there is no excuse for a poor boy being kept out, if he is made of the right kind of stuff. Not only are scholarships offered in several schools, but in practically all schools, and especially those in the large cities, there are many opportunities for employment and self-support. Young men of reasonable "grit" and good health need not be kept from attending a school of pharmacy through lack of money.

6. *That it would cause a shortage of druggists.* As already stated, there are enough druggists now qualified to care for all drug work for ten years to come. Illinois has six

thousand registered pharmacists and three thousand drug stores. A third of that number would suffice to supply the strictly drug service for its six million people.

7. *That college courses are too theoretical.* If this is true the objector has in mind the wrong kind of a college. Here is where the boards of pharmacy could exercise supervision. Laboratory instruction of the most practical kind has been greatly increased during recent years and college courses in pharmacy are better than ever before.

8. *In country towns and thinly-settled districts professional knowledge and skill are seldom required.* True, possibly, but human life is as valuable in the country as in the city and the dangers of error just as great. Small communities are entitled to safe and efficient pharmaceutical service as much as are populous centers.

9. *That while the prerequisite is coming, the time is not yet ripe for it.* The time *is* ripe for the pharmaceutical prerequisite. Already other medical branches are leaving pharmacy far behind. The popular estimate of pharmacy has fallen so low that it is considered a fit subject for a high school course. No other branch of medicine would submit to such humiliation. Unless action is taken soon, there will be little left of pharmacy to save; it will have been engulfed in the rising tide of commercialism.

SUMMARY.

1. Prerequisite legislation has had a fair test. It has been in operation in New York for eleven years. During this period four other states have adopted it by law and two by state board regulations. No serious efforts have been made to repeal these laws or regulations. The results have been satisfactory to the pharmacists of these states. There has been no shortage of clerks, nor have clerks' wages been unduly advanced. Entrance requirements to the colleges have been increased with the result that a better educated class of young men are entering pharmacy.

2. Public welfare demands that the pharmacist be well trained. This training is not unduly expensive. Ambitious and energetic young men may be self-supporting, or nearly so, while attending the schools of pharmacy. Quiz courses and courses by mail do not give the right training. Self-trained men are unlikely to be well trained.

3. The present and future welfare of pharmacy demand better preparation, both preliminary and professional, on the part of the young men entering its ranks. The underlying sciences and the related medical branches are developing rapidly: pharmacy must keep up or lose caste altogether.

4. Prerequisite legislation is coming. It is better that pharmacists should direct it and adjust it to their conditions rather than to have it framed by outsiders. Properly drawn prerequisite laws will work no hardship on anyone.

RECOMMENDATIONS.

The slow progress of prerequisite legislation in some of the states is due to the indifference and the lack of information on the part of druggists, rather than to any feeling of hostility. In correspondence with the state association secretaries, a common expression is: "The prerequisite is coming but the time is not yet ripe for it." The druggists must be informed regarding prerequisite education and what it aims to accomplish. They must be frequently reminded of its bearing upon pharmaceutical progress. In short, they must be educated to an appreciation of its importance. Publicity must be sought, not only through the pharmaceutical journals, but also in the medical journals and in the newspapers.

As a first step in the education of druggists the legislative committee of this joint body should get into communication with the legislative committees of the state associations and should supply them with copies of this report or of such parts of it as may seem desirable. The request might be made that when the state legislative committee reports to its state association, a copy of this report be included.

A joint committee of the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties should be appointed with instructions to secure as much publicity as possible for the prerequisite movement.

The support of physicians individually, as well as of the state medical societies, should be sought. As a rule, physicians are quick to appreciate the importance of professional training based on adequate high school preparation.

REPORT OF THE COMMITTEE ON THE PRESIDENT'S ADDRESS.

The Committee on the President's Address, consisting of Messrs. Wm. B. Day, J. W. Sturmer and E. L. Newcomb, reported favorably on section (*a*) of the first recommendation, and relative to section (*b*), the committee recommended the " high school courses of pharmacy" be investigated and a report thereon be made at the next annual meeting.

Recommendation No. 2 was reported favorably; the Conference, however, changed the mandatory requirement to a recommendatory provision until 1918.

Recommendation No. 3 was adopted after striking out the words "postal card," inserting the word "proposed" before "referendum postal card," and omitting the last sentence ot the recommendation.

Recommendation No. 4 was disapproved, so that the President may appoint a member of any institution, holding membership in the Conference, on committees.

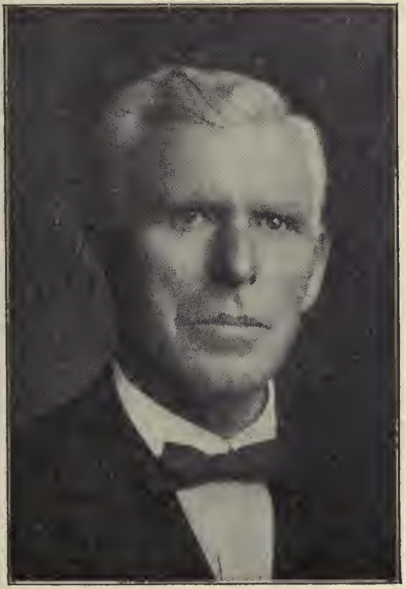
Recommendation No. 5 was changed, placing the duties involved in the hands of the Executive Committee instead of the President.

Recommendation No. 6 was disapproved and the seventh recommendation approved.

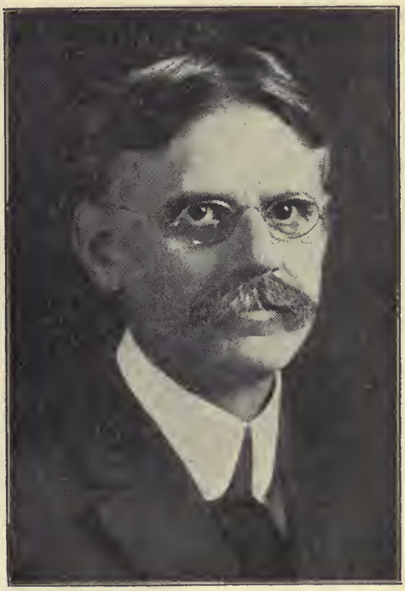
R. A. Lyman was chosen president, Theodore J. Bradley, vice-president, and Wilbur J. Teeters re-elected secretary-treasurer. Messrs. Julius A. Koch, H. V. Arny and Wm. B. Day were elected to serve as the Executive Committee and C. M. Snow was elected as a Conference member of the Syllabus Committee.

The American Pharmaceutical Association was requested to print the report of the Committee on Prerequisite Arguments in an early issue of the JOURNAL, and that reprints be made for distribution.

Chairman Henry Kraemer reported for the Advisory Commission on Examinations, and on his suggestion it was ordered that six sections of the Committee be appointed, so constituted that the different branches, for which examinations are held and taught in the Colleges of Pharmacy, will be represented.



JOHN C. BURTON, Stroud, Oklahoma
Retiring President, N. A. B. P.



H. V. ARNY, New York City
Retiring President, A. C. P. F.
Elected Reporter on the Progress of Pharmacy, A. Ph. A.

SYNOPSIS OF PROCEEDINGS OF THE THIRTEENTH ANNUAL CONVENTION OF THE NATIONAL ASSOCIATION BOARDS OF PHARMACY

The thirteenth annual convention of the National Association Boards of Pharmacy was called to order at 10.45 on Thursday morning, August 31st, in the Assembly Room of the Bourse Building, Philadelphia, by the President, J. C. Burton, of Stroud, Oklahoma.

W. L. Cliffee, or the local committee, extended a hearty welcome to the visiting members, which was responded to by John Culley, of Utah.

President John C. Burton called on Secretary H. C. Christensen, of Illinois, to call the roll.

After the roll the Secretary announced that twenty-eight States were represented.

John A. Weeks, of Texas, addressed the Association on the subject: "The Responsibility of Pharmacy Boards." Mr. Weeks said in part—"The member of a Board of Pharmacy is in a measure responsible to every patient and every physician in his State for the work done by the licentiate of his Board. The judge on the bench into whose hands is thrust the power of passing the death sentence is no graver or more responsible dispenser of justice than the man who passes on the fitness and qualifications of those who are to compound remedial agents for the sick. The examination of a candidate to practise pharmacy should be conducted without fear or favor and each candidate should be given the grade he earns.

"A very grave responsibility confronts us when we realize that American Pharmacy can never be stronger, better or more efficient than its state examining boards. When you place an o'k on an unqualified man or woman you have perpetuated a wrong that can never be righted. The status of American pharmacy is established by the State Boards. Neither the pharmacists nor the schools can establish the standards, since the State Board is the gateway through which the pharmacists must enter the craft. I do not believe all boards are as careful as they should be, either in the preparation of the questions or in the grading of papers. I do not believe we take the position as seriously as we should or appreciate our responsibility to the fullest extent."

Mr. Weeks urged that a standard of preliminary education be required of all those who seek to practise pharmacy, and that examinations be standardized, so that "registered Pharmacist" will mean the same thing in every state.

The address was discussed by Messrs. Meredith, Diekman, Christensen, Diner, Ostend, Leverty and others.

At the suggestion of J. A. Leverty, the subject "Identification of Applicants for Reciprocal Exchange" was discussed with the result that a committee was appointed by the Chair to draft a plan of identification. H. L. Meredith, Maryland; H. L. Haussamen, North Dakota; and J. T. Baltar, Louisiana.

This Committee's report, which was presented by W. G. Haussamen, recommended a blank similar to a Traveller's Check to be signed by the applicant and attested by three citizens of the city in which the applicant resides; one of the witnesses shall be a former employer of the applicant or a registered pharmacist. The report of the Committee was adopted.

At the opening of the afternoon session on motion of H. C. Christensen, the application of the Mississippi Board of Pharmacy for *active* membership and the application of the New Jersey Board for *associate* membership were accepted.

President Burton at this point requested J. W. Gayle of Kentucky, vice-president, to take the chair, and then proceeded with the "President's Address." Recommendations were as follows:

First, That a committee of at least five be appointed from this body to present to the Section on Education and Legislation of the American Pharmaceutical Association such provisions as may be adopted by this Association; and further to coöperate in joint session with that Section, with a view to obtaining the adoption of a number of "provisions" on matters of general interest to pharmacy that may be furnished to state board or state association members who may ask for suggestions regarding desirable changes in state pharmacy laws.

RECOMMENDATION No. 2: The same committee to submit resolutions of interest that may be passed by the N. A. B. P., to the A. Ph. A., for its endorsement.

RECOMMENDATION No. 3: Appointment of a committee on "Higher Educational Standards" to work with a similar committee from the A .Ph. A. and N. A. R. D.

RECOMMENDATION No. 4: Appointment of a committee of three on "Relations of Colleges with Boards," to work with a similar committee from the Faculties.

RECOMMENDATION No. 5: That the joint committee of the Faculties and Boards on "More Satisfactory Examination of Candidates for Graduation and Candidates for Board Certificates" be continued.

RECOMMENDATION No. 6: Be it hereby resolved that we request that the section on "Education and Legislation," of the A. Ph. A., in joint session with the Faculties and Boards, to give consideration to a "Prerequisite Provision" (graduation from school or pharmacy clause), that when enacted in a state pharmacy law, will not be retroactive in its applications, thereby preventing the Board of Pharmacy of such a state from granting reciprocal registration (both states being "Active" member states of the N. A. B. P.) to applicants who are not graduates of schools of pharmacy, but who at the time of passing examination and becoming registered in their state, complied with all the requirements of the laws of the state pertaining to registration of pharmacists, such laws having equal requirements at the time, with the state in which the applicant may later seek to gain reciprocal registration.

On motion of H. L. Meredith, Chairman Gayle appointed W. H. Cousins, Texas, H. A. Eaton, Iowa, and D. R. Millard, Maryland, as a committee on the President's Address. The committee later reported favorably on all recommendations made by the President, and on vote of the Convention they were adopted.

On resuming the Chair, President Burton called on George M. Beringer, Jr., of the New Jersey Board of Pharmacy (this Board was elected to "associate membership" at the morning session). Mr. Beringer stated that although the New Jersey Board had only just become affiliated with the Association, they had always taken an active part in furthering the best interests of pharmacy and that for some time had been alive to the good work being done by the Association, and were glad to be placed in a position to better give assistance in bringing about continued progress.

Chairman Lawrence C. Lewis of the Executive Committee presented the report for his committee, which was referred to a committee consisting of the following named members: W. E. Sherriff, Kansas; Leo L. Mrazek, Illinois; H. B. Purdy, Connecticut. The Committee later reported favorably on the following recommendations which were then adopted by the Association.

RECOMMENDED, that annual meetings of the N. A. B. P. be held at the same place as the A. Ph. A. Conventions, on Monday and Tuesday of the same week in which the A. Ph. A.

convention is held. Provided, however, that the program of sessions of the N. A. B. P., the A. Ph. A. and the joint sessions of the Faculties and Boards must be arranged so that the most important sessions of these bodies will not conflict with each other. Otherwise, it is suggested that it might become necessary to recommend that the N. A. B. P., and the A. C. P. F., hold their meetings either just preceding or just after the A. Ph. A. Convention. It was also suggested that unless the A. Ph. A. Convention would be held in locations favorable to the largest possible attendance, it might become necessary for the Boards to hold their annual meetings separately from those of the A. Ph. A.

RECOMMENDED, that the Secretary attend board of pharmacy examination meetings in the various States whenever possible: with a view of bringing about compliance with recommendations of the Advisory Examination Committee (of which Secretary Christensen is Chairman), with regard to more uniformity of examinations in the different States.

RECOMMENDED, that changes in the new United States Pharmacopœia be not taken into consideration in preparing boards of pharmacy examination questions until after January 1st, 1917, and that for the first year after that date only such changes as apply to the more potent drugs and their preparations be given consideration.

RECOMMENDED, that State boards follow as closely as possible suggestions of the Advisory Examination Committee of the N. A. B. P. with regard to examination questions and methods.

RECOMMENDED, that members of boards of pharmacy meet with those of adjoining States during examination periods whenever possible.

RECOMMENDED, that since the Supreme Court of the United States has handed down a decision that the possession of narcotics does not constitute a violation of the "Harrison Act," and since we believe this decision has largely nullified the intentions of the law, we recommend and urge that Congress enact an amendment to the Harrison Law whereby the main objects of this law be not impaired or defeated.

Mr. H. L. Meredith, chairman of the Legislative Committee, was called on for the report of that committee. Recommendations of the committee that were adopted are as follows:

No. 1: Providing that it shall be unlawful for any person, unless he is registered with the United States Collector of Internal Revenue in the District in which he resides, to sell, dispense or give away any preparation or remedy containing any opium or cocoa leaves, their salts, alkaloids or derivatives or other potent drugs or chemicals which may be enumerated in the so-called Poison or Anti-narcotic laws of the State or District in which he may reside. A detention as well as monetary penalty to be attached. Enforcement to be placed in the care of the State's Pharmacy Board.

No. 2: Providing a heavy penalty for false representation as a registered pharmacist, licentiate in pharmacy, assistant pharmacist, etc.

No. 3: Requiring that every drug store be supplied with a copy of the latest edition of the United States Pharmacopœia and National Formulary. Penalty suggested to be double the cost of the edition mentioned plus cost of prosecution. Enforcement with the Board of Pharmacy.

No. 4: Requiring that the Registered Pharmacist who is in charge of a pharmacy or "department of pharmacy," whether proprietor or manager, shall in addition to displaying his certificate, have his name affixed either upon separate or composite labels placed on medicinal agents, while in charge as Registered Pharmacist. Also there shall be caused to be conspicuously displayed over the entrance to the drug store or department of Pharmacy the name of the Registered Pharmacist in charge. Fine for violation to be paid by the owner or employer. Enforcement in charge of Board of Pharmacy.

No. 6: Providing for the appointment by the N. A. B. P. of a committee of five members from this body whose duty it shall be to enter into conference with the proper officials of the Internal Revenue Department, with the end in view that of eliminating from the processes of the Harrison Law such drugs and chemicals which from their very nature automatically are eliminated from the class of habit-forming drugs.

No. 7 and 8 were rejected.

No. 9: Your Committee recommends that the President, Secretary and Chairman of the Executive Committee constitute a committee whose duty it shall be to confer with the Program Committee of the A. Ph. A. to the end that the more important sessions of the two bodies be so arranged as to entail the least possible conflict.

President Burton next called for the report of the Advisory Examination Committee, and Secretary Christensen read that report. The main thoughts centered on greater efficiency, and it was pointed out that the time would come when the examiners would be required to submit to an examination relative to their qualifications for these important positions. This promotion should be encouraged by the boards of pharmacy.

The report of the Advisory Committee was adopted.

The President appointed a committee composed of John A. Weeks, Texas, Edward Bloomfield, Kentucky, and Edward Walsdorf, Louisiana, to draft a resolution with regard to time of filing applications for Reciprocal Registration. Mr. Bloomfield made the following report:

All applicants for Reciprocal Registration must file their applications with the Secretary of the Board in which he desires to reciprocate within ninety days after receiving the official application blank from the National Secretary. If said applicant for Reciprocal Registration is rejected by the Board of Pharmacy then all fees shall be returned to him (except the $1.00 fee to the Secretary of the Board of Pharmacy, from which he applied, for certifying to registration and grades). If said applicant fails to file his application with the Secretary of the Board within ninety days after receiving the same, then said application blank shall be void and said applicant shall forfeit the entire fee. The Secretary of the State Board shall date said application blank as of the day received.

The report of the committee was adopted, to go into effect the first of October, 1916.

After discussion regarding ways and means of increasing revenue to the Association, a recommendation to increase the annual dues of "Active" member states of the N. A. B. P. from $15.00 to $35.00 was adopted. The fee for application blank for "reciprocal registration" was increased from $5.00 to $15.00.

President Burton called for the report of the Nominating Committee, which was read by H. L. Haussaman, recommending the following officers for next year: President, Lawrence C. Lewis, of Alabama; first Vice-President, John A. Weeks, of Texas; second vice-president, D. W. Ramsaur, of Florida; third vice-president, John A. Leverty, of Connecticut; secretary, H. C. Christensen, of Chicago; treasurer, F. W. Ward, of Memphis. The following were elected to serve on the various committees; Executive Committee, E. G. Cox, Missouri; Chairman of the Advisory Examination Committee, H. C. Christensen, of Chicago; Syllabus Committee, Charles R. Skinner, of Vermont.

The report of the Committee was adopted and the gentlemen named were elected as officers of the Association for the ensuing year.

The Session was adjourned to meet Saturday evening at half past eight.

Adjourned Fourth Session—Saturday evening.

President Burton called the Association to order in the Assembly Room of the Rittenhouse Hotel, at 8.45 o'clock and called for the report of the Auditing Committee, which report was presented by E. G. Cox, of Missouri, and adopted.

The installation of officers then took place and the convention adjourned.

JOINT SESSION OF THE NATIONAL ASSOCIATION BOARDS OF PHARMACY WITH THE AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES.

The first Joint Session of the National Association Boards of Pharmacy with the American Conference of Pharmaceutical Faculties was called to order in the Assembly Room of the Rittenhouse Hotel, Philadelphia, at 10.30 o'clock Saturday morning, September 1, 1916, by President H. V. Arny of the Conference, and after a few introductory remarks by Professor H. P. Hynson, Baltimore, the President requested Secretary H. C. Christensen of the Boards to address the Joint Session.

Mr. Christensen stated that the object of the meeting was the getting together of the two Associations and the bringing about of more favorable conditions between the Boards and Faculties. He thought a good deal of progress had already been made.

President Arny next called for the address of President J. C. Burton of the Boards following which he read his address, both of which were discussed by Jacob Diner, George C. Diekman, H. P. Hynson, C. B. Jordan, H. C. Christensen, L. E. Sayre, Wm. C. Alpers, W. E. Sherriff, H. H. Rusby, H. M. Whelpley, Philip Asher, Jacob H. Rehfuss.

President Arny next called for report of Committee on Prerequisite Arguments. This report was made by Professor W. B. Day and referred to the Executive Committees of the two Associations.

President Arny called for the report of the committee on "The Fairchild Scholarship," which was presented by Dr. W. C. Alpers, and approved.

HOUSE OF DELEGATES, AMERICAN PHARMACEUTICAL ASSOCIATION.*

THE CHAIRMAN'S ADDRESS.

BY H. P. HYNSON.

To the Honorable Members of the House of Delegates:

Gentlemen:

Possibilities of organization are far beyond finite conception. Respect for organization and disregard for the individual is the very first thing the student of nature learns. Why we allow ourselves to stand alone in anything is a great wonder, especially when we have such striking illustrations of the power and effectiveness of systematic organization, as is shown by the various governments, particularly our own state and national organizations, by the great and good Roman Catholic Church, by the political parties which really control our government and, more to our present purpose, by the American Medical Association. It is a pattern in form, in system, in application, in consistency and, of course, in effectiveness and in accomplishment.

Organization in nature and of nature begins with a most radical conception and prospers most at the apparent sacrifice of the individual. The qualifying adjective "apparent" must be used, because if organization did not finally advance the interest of the individual it would be a failure. It must bring the greatest good to the greatest number. Yet, in the beginning, the individual, for the good of the myriads to follow, must lay down his life, if need be.

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* Atlantic City meeting, A. Ph. A., 1916.

In the work of a committee of the Conference of Pharmaceutical Faculties as a minority number, I have this to say:

Any organization is better than no organization. Organization means co-operation, the sinking of individual interests. The worth, strength, effectiveness, helpfulness of an organization is exactly consistent with the extent of personal or individual sacrifice, which sacrifice is compensated for in a thousand-fold measure by the direct returns accruing from the fortunate organization that has entailed a perfect abrogation of individual interest. One has only to examine and study successful and effective organizations of any and all kinds to discover that they are helpful and respected because they demand the subjugation of individual interests to and for the general good. In the most noticeable instances, property, and even life, are at the command of the co-operative organized body, whatever it may be. No such extreme ordering of things is contemplated in the present instance, but it is thought that individual interest should be, in all affairs of public concern, of last consideration. One must have but little imagination and small views of the future and its yieldings, if he cannot see the wonderful effect the educational facilities of one generation has upon the next and upon all following generations. It is possible for those who hold educational responsibilities of any phase, within their keeping, to retard, and greatly retard, the betterment of mankind. But they can only retard, they cannot forever hold back, progressive tendencies, yet their responsibility for failure to join, even at the great individual sacrifice, any movement that has for its object the general betterment of any feature of educational progress with which they might have co-operated, must, finally, in the completed history of education, bring reproach far and away beyond any prestige that may have been won by a less generous policy.

It is, therefore, most respectfully suggested that if we are really desirous of promoting pharmaceutical education and are really interested in bringing to a creditable level *all* the schools of pharmacy that might be affected by a more generous co-operation, and, if we are willing to do our best to eliminate all institutions that will not or cannot take such a stand, we must have an organization of the schools or colleges of pharmacy, that is an organization co-operating for the general pharmaceutical good and not one that encourages and assists the strong and makes more difficult the progress of the weak. Such an organization is not an impossible conception; such generous impulses are conspicuous in the world to-day. In fact, it is the spirit that pervades all fields of creditable endeavor. Any one who does not realize and enjoy this happy condition is most unfortunate and bases his respect for the more sordid operations upon the fallacious evidence of personal advancement.

The gathering together in annual conference of a fair number of faculties during the last fifteen or sixteen years has been very beneficial. Probably it has been just the educational means required to tell us the kind of an organization we now need to do the most good. At this time, a large majority of those who have participated regularly in this Conference are still active, holding the invaluable experience and knowledge this free and unrestricted Conference has given them. This particular knowledge and this unusual experience entails a special and most serious responsibility. Who should be better fitted to bring about a real organization of teaching schools of pharmacy, which are willing and able, willing and able, it is repeated, to conform to any adopted plans and become subject to the absolute control of the whole, being assisted and advised by a similar organization of the boards of pharmacy.

The reorganization of this Conference may be the preferable way. An alternative is the continuation of the Conference for a time for what it may be worth and, in addition, the formation of an intraorganization as a nucleus for the proper organization to be developed in the near future. Will not a few of the Conference members be willing to set an example and the pace?

If we can do no more at this meeting, we can profitably discuss such organizations as control, or seek to control, other phases of technical education. We can provide for a really careful investigation of other similar bodies by a competent committee which will generously study educational organizations, generally; we can authorize the presentation of some progressive plans whereby those coming into the conference may be more closely bound together and whereby those who are in may gradually change their relationship and, best of all, we can examine ourselves and perhaps be induced to see that we cannot possibly, by ourselves or individually, devise plans which will best conform to the needs and betterment of future pharmacy. Let us look to *real* co-operation in pharmaceutical education and pinch ourselves into believing that neither our prestige, nor our power, nor our popularity, will win the salvation of the endless multitudes who will follow us.

So much for the principles of organization, the principles that order the abnegation of self, that acknowledge the weakness of the individual and the greater strength, the greater fairness and the better accomplishments of the many. One must become thoroughly impressed with these fundamental principles of organization before he can become happy and enthusiastic in organization work, and the force of these truths must be driven far into his understanding by an intelligent knowledge of what organizations do and have accomplished. You may have no faith in your pharmaceutical bodies and may strive to discredit them, but they are controlling you. Yes, you and your business and your welfare.

As chairman of a committee on The Federation of all Pharmaceutical Bodies of the Conference of Pharmaceutical Faculties, I have written as follows:

I have been compelled to give consideration to three phases of organization for this conference and the convention of the A. Ph. A. These different phases are: basic organization, involving the principles of co-operative work; general organization, which refers to the subject directly under consideration; and special organization which, in this instance, refers to the House of Delegates of the A. Ph. A.

The most of you have heard my feeble but best-I-could-offer plea for the unselfish organization of the schools of pharmacy and I beg you to bear in mind the elementary nature of that plea. It was for the subjugation of self or self-interest to the general good, which, to the point, means that each of the pharmaceutical bodies, that might be federated for the greater benefit of pan-pharmacy should begin to bring about this most desirable end by training itself and by, finally, making itself willing to forget the direct effect of such a combination or federation. Like individuals, these separate organizations must, in the more liberal fashion, conclude and resolve that no matter how difficult the readjustment may be, the difficulty will be met and overcome for the great good of the larger number of organizations involved.

In any contemplation of this subject, we, as one of the bodies that may be federated, must continually bear in mind that *this is not to be the larger body, not even the larger part of it,* but at best, only an equitable part. Certainly we cannot be helpful in promoting the formation of such a forceful combination as contemplated, if we do not favor the utmost liberality or appear as unwilling that the authority of the confederated bodies shall continue inviolate so far as their special affairs are involved. There will, of course, be a clear definition of provinces and a full surrender of all mutually applying subjects.

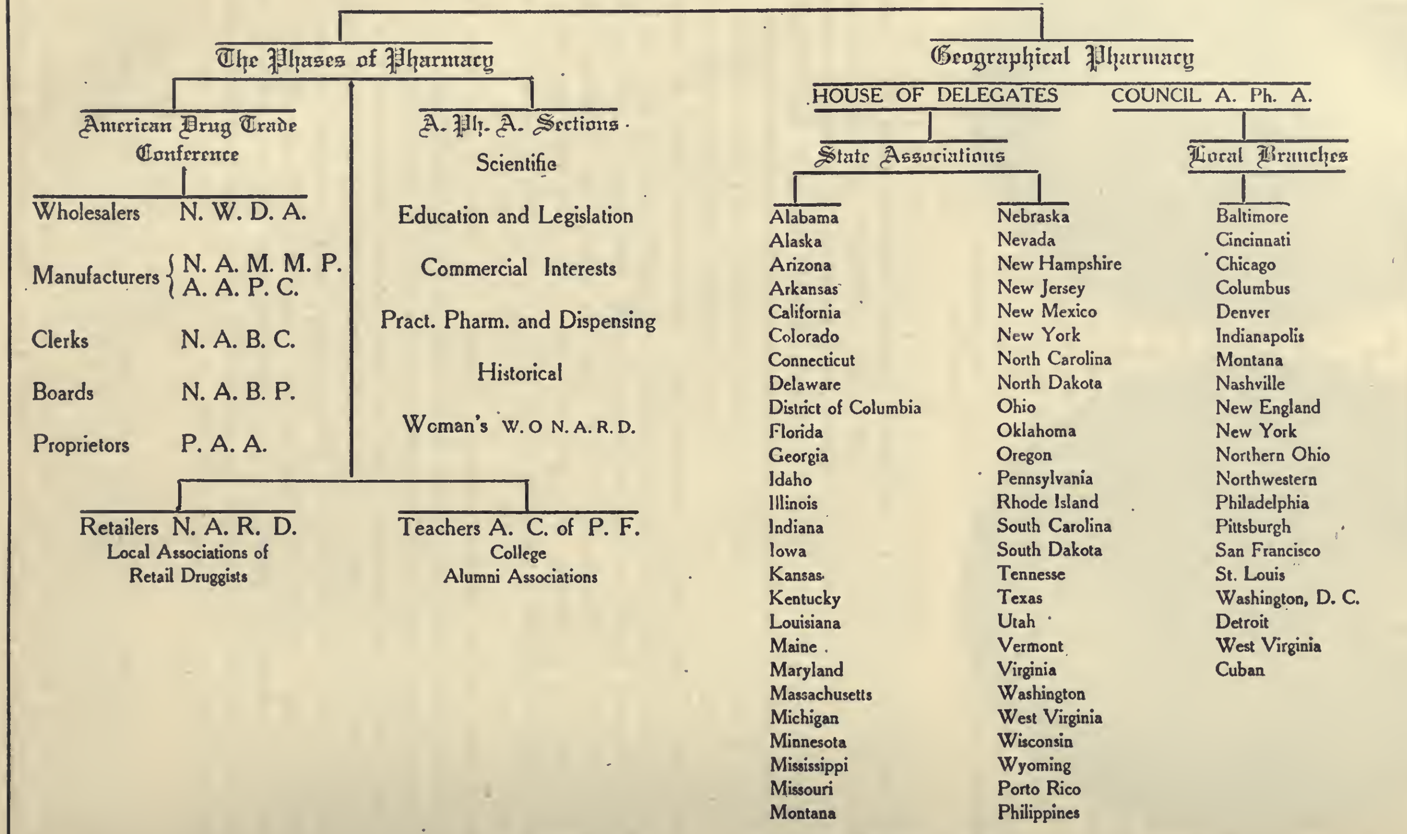
The pharmaceutical bodies of the United States may be truthfully divided into two great classes: those of national significance and those of local scope. According to the Druggists' Circular, there is but one state and but one of our insular possessions without pharmaceutical organization, so that we may positively state that pharmacists are extensively organized, but not effectively and impressively organized.

Again it may be most truly stated that every interest, or every phase of pharmaceutical activity, is separately organized, but even they are not impressively organized. They are not linked together as an impressive and forceful whole.

These organizations of distinct interests; these organizations, high, low, little and big, local, state and national cannot be directly connected; they must be divided into classes and the classes systematically and consistently linked together. This is graphically shown in the accompanying diagram.

The Federation of all Pharmaceutical Bodies

PAN PHARMACY A. PH. A.



The desirability of consummating such a scheme is too obvious to be seriously argued and a general argument will not be presented. One feature is just now before us: the linking up of the state and territorial organizations and more closely connecting them with their mother, the American Pharmaceutical Association. The remarkable similarity of the character of membership and character of work of these state organizations to that of the mother organization shows the "fitness of things."

Now we come to the special subject of making the House of Delegates a body of state association delegates only. It may be asked, what will be the advantage? The answer is the same that would be made to the question: "What is the advantage of a comprehensive, well-ordered organization?" or "What is the advantage accruing from the union of these United States?" Such unions are not merely advantageous, they are an absolute necessity. Every reason that has ever been offered for the confederation of the states of this Union may be offered for the confederation of the state pharmaceutical associations and these reasons so far outweigh any little interest that a delegate representing any other kind of organization may have, that it is scarcely believable that any opposition will come from this source.

It is very safe to say that the A. Ph. A. needs the state associations much more than the latter need the A. Ph. A., and the A. Ph. A. does need something and needs that something very badly to make it the representative of present-day American Pharmacy. It is really humorous and smacks of *opera bouffe* to claim that three thousand individual members, individual members, mark you, not delegate members, variously scattered over the domains of Uncle Sam, represent the great interests of American Pharmacy.

The organization of the collective interests of pharmacy into the A. Ph. A. and into divisional bodies, the state associations and the organization of the varied interests into separated bodies is most fortunate, but it must be obvious to every one that order and helpfulness cannot come out of any effort that has for its object the corralling of all these differently constituted associations into a hap-hazard delegate body, such as the present House of Delegates. It is unthinkable that such a conglomeration of unequal and differently interested delegates could do more than "pass the time of day."

The A. Ph. A. has failed to grow, has failed to grow either in size or strength at all commensurate with the interests it is supposed to represent, and it needs treatment, or perhaps better, needs feeding and needs that feeding very badly.

The membership, the individual membership, in 1860 was about 250. In 1901 Knox presented the conditions of membership in an able and graphic manner. In 1881 it was 1225, in 1891 it was 1909, in 1900 it was 1263, now it is about 3000. The Association never did represent ten percent of eligibles and now I do not believe it represents five percent of those eligible to membership.

It is absolute folly to contemplate a national body of all classes and kinds of broadly called pharmacists, made up of individual members. A truly representative body of this scope must, of necessity, be a delegate body and such should be earnestly advanced by all those interested in the future of pharmacy.

It may be asked, why will the N. A. R. D. not answer as such a delegate body? The answer is that the N. A. R. D. was organized and is maintained specifically to represent retail druggists and to defend their interests and, while retail druggists are numerous, they are only a part of the pharmaceutic body. Again, the N. A. R. D. has descended from an all-delegate body as first proposed and is unfortunately a mixed organization of delegates and individual members. I remember something about the organization of the N. A. R. D. The all-delegate organization was surely uppermost at its birth. Some of us were quite unpopular in those early days, because we thought the state associations should not send delegates, since the state associations were composed of all sorts and conditions of pharmacists, and the state associations and their non-affiliation have ever been a thorn in the N. A. R. D. flesh. Those who opposed the voting power of delegates from the A. Ph. A. seem to have been justified by the reduction of the number of delegates, from five to three, and these, as they should be, will finally be denied.

The state associations are so nearly like the A. Ph. A. in every respect that it will be perfectly consistent and eminently proper for a combination to be formed. It is interesting to note one state association has already formed its own Scientific and Commercial Sections with success, and two others have anticipated the action of the A. Ph. A. in authorizing divisional district delegates. Casual reading of the proceedings of the various state associations shows, as everybody knows, that their work is strikingly akin to the mother-body's doings.

But more to the point is the proof that there is a community interest in these associations upon many important matters, for instance, the price maintenance measure now before Congress; the regulation of the sale of liquors, especially in prohibition states. The model pharmacy law of friend Freericks must finally be discussed by all the state associations. But why not, preferably, by their delegates in convention assembled? Other subjects, discussed at the state meetings, were as follows: Prescription Pricing and Profits; Anti-narcotic Laws; Side Lines; Local Journals, very interesting; More Manufacturing by Retailers; Value of a Drug Store Laboratory; Legal Status of Alcohol; The Drug Market; Growing Drug Plants; Dispensing by Physicians; Food and Drugs Laws; Sunday Closing; "Peyote" Narcotic; What is "Peyote," anyway? Shorter hours, we all want them. I sometimes think how interesting the meetings of the A. Ph. A. would be if it had programs something like the larger state associations.

I am done, yes, I am really baked and served. I am ashamed to have taken up so much of your time in advocating a movement, the desirability of which is so patent that it seems to bring it about it needs only to be mentioned.

H. P. HYNSON
Retiring Chairman, House of Delegates, A. Ph. A.

FRANK H. FREERICKS
Retiring Chairman, Section on Education and Legislation, A. Ph. A.

SCIENTIFIC SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

VEGETABLE TAXONOMY.*

BY OTTO A. WALL, PH.G., M.D.[1]

The germs of botanical science are found in a rudimentary form in very remote antiquity. The beginning of a science may be considered to be that time when the subject to which it relates first engaged the thought and incited the investigations in regard to the particular natural phenomena by early mankind.

The actual achievements are not of material consideration in this connection; the fact that a subject became an object of study and speculation at a certain period constitutes the "germ" or "beginning" of the science, regardless of the question whether these early theories stood the test of time and were found correct, or whether they were afterwards abandoned because they were proved to be incorrect.

It can only be in this sense that it can be said truthfully that the germs of botanical science are traceable in remote antiquity.

Figuier, in *Vegetable World,* says that the ancients already held the view that plants were sexual, and says this as if such ancient assumption was based on more or less scientific foundation. It is therefore of interest to examine the ancient views on sex, and this will show that Figuier's assertion is erroneous and that the idea that the ancients *knew* plants to be sexual rests on very slim premises.

Primitive man probably at a very early period commenced to speculate on the origin or source of life. It is not inconceivable that the troglodytes living in their caves, depending for food on the hunt and chase, slaying wild animals in self-defence, others for game, robbing birds' nests for food, and using all animal products, even including the slain of their own kind, as provender, came across some eggs just as they were hatching, and generalizing from such observations, the egg became to them an early and primitive conception of the source of life and creation; and the "Cosmic Egg" became a feature of many mythologies and cosmogonies. From this egg originated our universe and all that it contains, including our earth, our gods, and men.

Appuleius, an ancient writer, "saw in the egg the symbol of all that was, that is, and that is possible to be"—and modern biology teaches that the ovum or egg is the highest manifestation of life, to which all other phenomena of life are subservient and contributory.

To civilized man only man seems personal—a real conscious *Ego—"Cogito, ergo sum!"* But savages, primitive men, conceive every object as being personal, endowed with passions and attributes like themselves; even the most abstract phenomena were regarded as persons—sky, earth, wind, fire, etc.

In the dim ages, before Linnæus, Berzelius, Cuvier and others had classified living beings and inanimate objects, the distinctions between animal, vegetable and inorganic objects were unknown. There were many transitional forms between animals and plants, on the one hand, while the fossils and petrifactions furnished equally transitional forms between animals, vegetables and minerals on the other hand.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting.

[1] Professor of Botany and Materia Medica in St. Louis College of Pharmacy.

No ideas of sex were associated with the Cosmic Egg of the ancient cosmogonies. Brahma, who produced it according to the Brahminic traditions, was male; so was the Egyptian god Seb who produced it. The ovum was not recognized as a feminine characteristic. But mankind in its childhood imagined all things to be alive, and to have sex like mankind itself. All religions are based on sex; some, like the ancient Egyptian, Greek or Roman, or the Brahminic worship of Siva, very coarsely so; others, like the Christian, more obscurely so. But sex was the greatest mystery of the ancients, and also the readiest explanation for reproduction and life of any kind, and so all things, animate and inanimate, were supposed to be sexual and to produce either their own kind, or any other kind of being, by processes analogous to those by which human offspring was produced.

Even the soil and stones were supposed to be able to produce human beings, and the ancient Greeks called men who sprang from their soil "autochthones." Even our negroes. who still cultivate many features of voodoo worship, consider lodestones to be powerful fetiches or love-charms, and know how to distinguish between the "male" and "female" lodestones.

With such ideas prevailing, it was but natural that all living things, animal or vegetable, were considered to be related to each other, and that they all, like humankind, were male and female. And animals and plants came to be regarded as the ancestors of the human race, or at least of certain tribes or people. This is *totemism.*

While totemism generally considers man as descended from and therefore related to certain animals (totems), there are tribes who claim to be descended from and related to certain plants. Such tribes could not kill any animal for food or use any plant that was "totem" to them; such animal or plant was tapu (taboo) to them.

Among the Red Maize Clan of Omahas (N. A. Indians) the red maize was considered to be their totem or ancestor, and members of this tribe may not eat red maize.

Among the ancient Norsemen, Ygdrasil was the tree of life from which all living beings sprang. It reached with its roots to all parts of the earth, and produced all the inhabitants of the earth; its roots reached to the lowest depths of the under-world and produced the demons and evil spirits; and its branches reached up into the air, and produced all the creatures that live in the air, and its uppermost branches reached into heaven and produced the gods, thus binding all life into one relationship.

Ygdrasil was an ash-tree (*Fraxinus*) and was the ancestor (or the male ancestor) of mankind. "Fru Eller" (*Alder, Alnus*), according to Norse mythology, was the female progenitress, or ancestress, of mankind. Such and similar was the origin of the ancient belief that plants had sexual attributes. We will consider a few more of these ancient (and modern uncivilized) notions in regard to sex.

The Persians imagined the first tree and the first bull to have been the first ancestors of the human race; as the bull was their symbol of the male creator, the tree must have been their first female ancestress. They discovered, in physics generally, two antagonistic, or rather complementary, principles, one male, the other female.

Heaven and Earth (the deities Uranus and Gea) were at first united or hermaphrodite in many mythologies, under various names, but were afterwards severed. Uranus (sky), overspreading Gea (earth), was supposed to be male and to be covering Gea in one unending sexual embrace.

In Maori mythology some of the gods were vegetable, some animal in nature. So also in Hindoo mythology.

Those of the people of Ambon who are descendants from trees may not use their totem trees for firewood.

An Ormon clan whose totem is the Kuj-rar tree will not eat of the oil obtained from that tree, nor even sit in its shade.

The *Eddas* say that the first man came from an ash-tree; the first woman from an alder-tree (the ash-tree a variety of *Fraxinus;* the alder-tree, *Alnus incana,* "Erle").

In making fire by friction a hole was made in a block of alder (yonic) and the stick which was twirled in this hole was of ash (phallic), the two by friction producing fire (heat and life).

The ancient Teutons considered the oak-tree male, because the acorn looks like a *glans penis* with its prepuce (acorn in its cupule).

A modern example of this method of grouping plants into male and female prevails in some rural districts of England, with regard to the holly (*Ilex aquifolium*). This plant is diœcious and the British Encyclopædia says that it changes sex from male to female with age.

The common people, however, distinguish two varieties of the plant; one variety which is prickly and rough and is called "he holly," the other variety, which is smooth or non-prickly, is "she holly," in analogy to the human body, which in the male is bearded and hairy on the body, while the female body is smooth and devoid of hair.

In some parts of Europe children are said to be found in lakes, from which they are brought by storks. In other parts they are said to grow on trees, or to be found in hollow trees.

The birch-tree (*Betula alba*) is considered to be feminine in Bavaria, and children are said to come from birch-trees, or to be found in hollow birch-trees. A newly-born girl-baby is bathed in a tub made of birch-wood so that when she grows up she will be attractive to the men.

The beech (*Fagus*) is considered also to be female, and in some provinces it is regarded in the same manner as the birch.

The *Lupercalia* were old Roman festivals on which occasions women ran about naked so that they could be whipped on their bare posteriors, to make them fertile. This festival survives in some primitive communities of continental Europe. Children are whipped with birch-switches ("Lebens-ruthen," life-switches), otherwise they will not thrive or grow, but remain stunted.

In many parts of Europe female domestic animals as well as the women of the household are whipped on the bare genitals with birch-switches on Halloween eve by the men of the household; this is supposed to insure fertility and healthy offspring.

In parts of Russia the husbands whip their wives on the bare posteriors with birch twigs to make them fertile and to insure easy and safe child-birth. A woman whose husband does not whip her thinks he does not love her. The trousseau of the bride contains the necessary bundle of birch rods or switches ("Ruthe"; also in German the name of the male virile organ).

In Poland, for the same reason, the bride is driven to the nuptial bed by the matrons with a rod of *fir,* which is there considered in the same way as the birch is elsewhere.

In Japan the fir is a symbol of the masculine; the plum-tree, of the feminine. At weddings dwarf trees of these two kinds are used as table decorations.

In India, when a Hindu plants a grove of mango trees, he will not take the fruit of the grove before the trees have been married (with full Brahminic rites and ritual) to some other kind of tree, usually a tamarind, sometimes an acacia. It is considered a disgrace if the mango trees commence to bear fruit before this marriage has been celebrated.

In the Punjab a Hindu cannot legally be married to a third woman; he gets around the difficulty by marrying a "babul" tree, so that the wife he subsequently marries is counted as his fourth.

In Bengal both bride and bridegroom are married to trees before they are married to each other.

Kipling wrote: "Lalun is a member of the most ancient profession in the world. In the West people say rude things about Lalun's profession and distribute lectures to young people in order that morality may be preserved. . . . Lalun's real husband, for even ladies of Lalun's profession in the East must have husbands, was a great big jujube-tree . . . for that is the custom of the land. The advantages of having a jujube-tree for a husband are obvious: you cannot hurt his feelings, he looks imposing, and he does not become jealous."

In Germany formerly, when a child was baptized, a "birth-tree" was planted; a male tree for a boy and a female tree for a girl; this was also done for one of President Wilson's grand-children.

According to Albertus Magnus (about 1250 A.D.), the trees used for this ceremonial were the pear-tree, which was masculine, and the apple-tree, which was feminine. The health and growth of the children were supposed to depend on the manner in which the tree thrived.

Among the ancient Greeks and Romans all trees that bore fruit were considered female; grammatically they were considered feminine, even if the names had masculine endings; the adjectives were feminine. In our scientific nomenclature we have retained this grammatical gender (or sex). *Prunus,* i. f., II Decl., plum-tree; as *Prunus domestica,* adj. fem. *Amygdalus,* i. f., II Decl., almond-tree; as *Amygdalus communis,* var. *amara,* adj. fem. *Quercus,* us, fem. IV Decl., oak-tree; as *Quercus infectoria,* adj. fem.

This applies also to many smaller plants, although not as regularly so: *Avena sativa,* fem.; *Oryza sativa,* fem.

But enough for the present of plant folk-lore; it shows that no element of a scientific nature entered into the widespread ancient belief that plants were sexual in their natures.

Of course, sex was more distinctly apparent in animals and mankind, but even here, the ideas as to the sexual process were vague and wholly unscientific. In fact, the earliest references, in the oldest mythologies, did not always assume two complementary principles or agencies (sometimes spoken of as "antagonistic principles"), but seem to have taught that the Creator was of hermaphrodite nature. I have already stated that in early cosmogonies the Cosmic Egg was not associated with a feminine or not even with any sexual agency.

In New Zealand, Chinese, Vedic, Indian and Greek myths Heaven (sky) and Earth constituted a hermaphrodite being; their union was perpetual. Only later on were they considered as a pair, or as unisexual and dual.

The *Purana,* a sacred Brahminic book, says: "The Supreme Spirit, in the act of creation, became twofold; the right side was male, the left was Prakriti. She is Maia, eternal and imperishable." Again: "The Divine Cause of Creation experienced no bliss, being isolated—alone. He ardently desired a companion; and immediately the desire was gratified. He caused his body to divide and became male and female. They united and human beings were thus made."

In imitation of this ancient theory that the Creator was androgynous or hermaphrodite some philosophers held the same view with regard to Jehovah (or Elohim), the god of the Bible. We read in the twenty-seventh verse of the first chapter of Genesis: "So God created man *in his own image; male and female created he them.*" And this is emphasized by repetition in the more explicit statement in verses 1 and 2, Gen., ch. v: "In the day that God created man, in the likeness of God made he them; and God blessed them, and *called their name Adam.*"

The Talmud (Hebrew Traditions) says that Adam was created androgynous. His head reached the clouds. God caused a sleep to fall on him, and took something away from all his members, and these parts he fashioned into ordinary men and women, and scattered them through the world.

After Lilith, Adam's first wife, mother of demons and giants, deserted him, God separated Adam into his two sexual parts; he took one of Adam's ribs and made Eve from it.

Philo, a Jewish philosopher contemporaneous with Jesus, said that Adam was a double, androgynous or hermaphrodite being "in the likeness of God." Philo said that "God separated Adam into his two sexual component parts, one male, the other female—Eve—taken from his side. The longing for reunion, which love inspired in the divided halves of the originally dual being, is the source of the sexual pleasure, which is the beginning of all transgressions."

Plato, a Greek philosopher, explained the amatory instincts and inclinations of men and women by the assertion that human beings were at first androgynous; Zeus separated them into unisexual halves, and they seek to become reunited.

The Aryans of India account for the appearance of the different animals in this way: "Purusha was alone in the world. He differentiated himself into two beings, man and wife. The wife regarded union with him as incest and fled, assuming the shapes of various animals. The husband pursued, taking the same shapes, and thus produced the various species of animals."

We read in Genesis (ch. ii, v. 7), "And the Lord formed man of the dust of the ground and breathed into his nostrils the breath of life; and man became a living soul." And Job said (xxxiii, 4), "The spirit of God hath made me and the breath of the Almighty hath given me life."

The "breath of God" was recognized as the vivifying, life-giving, fertilizing essence of the Creator, not only by the early Jewish religion, but also by other religions of antiquity.

Many ancient authors believed in the "out-breathing" (halitus) of the male being the fecundating agent that produced life. In medieval times it was held that Mary was made pregnant by the "word of God" (a very slight modification of the "breath of God") because the Bible tells us that "the word became flesh."

Pythagoras (500 B.C.) taught that "seed is an immaterial ether or vapor, similar to thought, produced by the male." And even as late as A.D. 1600, Caesalpinus, an Italian scientist, referred to a "*halitus*" or breath (an immaterial emanation, exhalation or vapor—practically the perfume) from the male plants as causing fertility in the female plants. But a material substance, or "seed," was substituted for the "breath" at a very early age.

Anaxagoras (a Greek philosopher, about 500 B.C.) taught that the embryo was formed entirely from the "seed" of the father and that the mother merely furnished the soil in which it grew and developed. But this theory was not new. Anaxagoras merely gave it more definite expression, and made it generally known and popular among the Greeks and the successors to Greek science. The earliest traces of this theory are found in the religious writings of archaic times. For more than a thousand years the sacred compositions of the Hebrews and the Hindus (the Old Testament and the Rig-Vedas) were transmitted orally in Southwestern Asia, and from the resulting folk-lore were obtained the contents of the Bible and the Rig-Vedas when these " books " were reduced to writings, and in both of these sacred books we find this theory, which was taught by Aristotle and Diogenes of Apollonia, but which is most generally ascribed to Anaxagoras, plainly stated.

In the ancient marriage ceremony of the Hindus, when the bride enters her husband's home, those present say: " As a fallow field thy wife enters; sow in her, O man, thy seed! "

And in the Bible we read (Gen. xxx, 11, about 1732 B.C.), " God said unto Jacob, Israel shall be thy name. . . . *Kings shall come out of thy loins"* (" loins " in this connection being a euphemistic translation of the Hebrew word meaning phallus or genitals). And again (Gen. xlvi, v. 26, about 1706 B.C.): " All the souls that came with Jacob into Egypt, *which came out of his loins* . . . were three score and ten."

This passage from the Bible is of considerable interest in connection with the theory of the " preformationists," who held not only that the fully formed although microscopically minute organism existed preformed in the seed of the father, but that it contained or included in itself (like a nest of pill-boxes one within the other) all subsequent generations of germs as well.

This view seems to be implied in the statement just quoted from Genesis, that the children and the children's children " came out of the loins " of Jacob. Again (about 1004 B.C.), the Lord said unto David: " Nevertheless thou shalt not build the house (the temple) but *thy son that shall come forth out of thy loins,* he shall build the house unto my name " (I Kings, ix, 19). The Bible therefore teaches this theory. As late as A.D. 64, this theory had Biblical sanction, for St. Paul referred to a time before Levi was born in this wise: " *For he was yet in the loins of his father* Jacob " (Hebr. vii, 5).

And such was the authority of the Bible that this view persisted until quite modern times. Charles Bonnet taught that before fecundation the germ is preexistent, and that it contains in miniature all the organs of the adult. His book, " *Contemplation de la Nature,"* containing these teachings was published in 1764–1765. Bonnet died in 1793.

Leeuwenhoek, in 1677, made known his discovery of the spermatozoa. Dr. Dalen Patius soon afterwards claimed to have seen the human form in the spermatozoön, " the two naked thighs, the legs, the breast, both arms, etc."

In France, in 1694, Hartsoecker published that " each spermatozoön conceals beneath its tender and delicate skin a complete male or female animal. The egg (of the woman) is merely the source of nourishment for the real germ contained in the spermatozoön. Each one of the male animals (spermatozoa) encloses an infinity of other animals, both male and female, which are correspondingly small, and those male animals enclose yet other males and females of the same species, and so forth in a series which are to be produced up to the end of time." And the scientists of those days seriously calculated when the supply of germs which Adam had deposited in Eve, and through her in mankind, would become exhausted, and how many human beings were preformed in the beginning and came " from the loins " of Adam. Buffon, the celebrated scientist, and the friend of Bonnet, held similar views.

So it appears that this view of the male furnishing the " seed " was predominant from about 1732 B.C. to the beginning of the nineteenth century, or, if we include the centuries of the oral transmission of the Bible, for about 4000 years.

Some ancient views:

Pythagoras, 500 B.C.—" Semen is an immaterial substance, like thought, produced by the male."

Alkmaeon.—" Both sexes gave seed; who gave most determined the sex of the offspring."

Anaxagoras, 500–426 B.C.—" The embryo is from the male only; a drop from the brain."

Democritus, 470–369 B.C.—" Seed is produced from all parts of the man's body."

Aristotle, 384–322 B.C.—" Seed is produced only by the male; it causes coagulation of the menstrual blood and this coagulum forms the embryo."

Diogenes of Appollonia.—" The embryo is formed from the seed of the male."

Then there was a long list of authors, generally referred to as " post-Pythagorean " philosophers, Thessalus, Drakon, Polybius, Dioxippus, Diokles, and others, who believed in accord with many ancient phallic religions that the male " seeds " were formed in the right testicle (on) and the female " seeds " were formed in the left testicle (hoa); they believed the sex of the offspring could be controlled by tying a string around one of the testicles during coition. A string tied around the right testicle prevented the male seeds from escaping, so that a seed from the left testicle would produce a girl child; and *vice versa,* by tying a string around the left testicle and allowing only seed from the right testicle to be emitted, a boy must necessarily be the result. Galen (130–200 A.D.) also taught this theory. Mohammed considered the seed to be merely fluid; in the Koran, Sura xcvi, he said: " Read, in the name of the Lord who created man from a drop! "

In Cruden's Concordance of the Bible, the first edition of which was published in 1737, but the edition which I have, and from which I quote, printed in 1829, we find the following definition of seed: " Seed—that thin, hot and spirituous humour in man's body which is fitted by nature for the generation of mankind (Gen. 38,9). Likewise for that matter which in all plants and fruits is disposed for the propagation of the kind."

The oldest mention of botanical lore was found in Assyrian and Egyptian inscriptions. In a tomb at Thebes a wall-painting was found which represents a botanical garden, and this is the earliest mention of the cultivation of exotic plants. A contemporary record on a temple wall at Thebes states that an expedition was sent by Queen Hasop (about 1600 B.C.) to bring incense trees from Punt (modern Somaliland) to be planted in the gardens connected with the temple for the purpose of cultivating incense for the temple ceremonials.

An early attempt at botanical illustration is a Babylonian sculpture (about 680 B. C.) showing Ashurbanipal's queen at a meal; among the plants in the background are a date palm and a grapevine, both of which are quite characteristically depicted.

In Sardanapal's library (650 B.C.) were figured plants and plant parts used in medicine, which were stated to be copied from inscriptions going back to between 4000 and 5000 B.C.

The promoters of botany among the ancient Greeks and Romans were not, properly speaking, botanists, but *rhizotomæ* or *pharmacopolæ,* gatherers of medicinal roots and herbs. Aristotle, Mithridates, Cato, Virgil, Dioscorides and the elder Pliny, however, all wrote on botany or the wonders of vegetation. The most learned and important works on this subject were the works of Theophrastus (fourth century B.C.). He mentions sexuality of plants, but did not determine any special sexual organs.

Of course it may have been empirically noted at a quite early time that some plants never bore fruit, while others of the same kind did produce fruit. The ancients considered fruit-bearing plants as female by analogy with mankind or themselves; the plants that did not produce fruit were therefore male. Some diœcious plants, like hemp, were of this kind; so were date palms; and this empirical observation led the ancients to speak of male and female plants without their having any real scientific understanding of the facts.

The works of Theophrastus remained the most important works on botany until comparatively recent times, in fact, until the times of Linnæus and his contemporaries.

Herodotus, who wrote about 450 years B.C., recorded that the female date-trees had to be fertilized by shaking among their flower-clusters the flower-clusters from the male trees. This procedure, as just explained, must have been due to empirical experience and not to scientific understanding, and the fertilizing power was even ascribed to the multitude of small gnats that were shaken out of the male clusters of flowers.

Alpini, a physician and botanist who lived 1553–1617, wrote: "The female date-palms do not bear fruits unless the branches of the male and female plants are mixed together; or, as is more generally done, unless the dust found in the male sheath or male flower is sprinkled over the female flowers." There does not appear any reason to place Alpini's opinion on other than purely empiric experience.

When alchemists realized the futility or absurdity of their search for the "philosopher's stone" which was to transmute baser metals to gold, or for the "elixir of life" which would cure all diseases and prolong life indefinitely, they turned their attention to the solving of the mystery of generation; the mystery of Adam and Eve, the "red man" and the white woman of Genesis in the Bible.

Caesalpinus (1519–1603), a learned Italian scientist, published a work entitled *De Plantis Libri xvi,* in 1583. In this work the author suggested a classification of plants which more or less distinctly foreshadowed both the Linnæan system and the Natural system of Jussieu and which he based on characteristics of flowers, stamens, pistils and fruits. In this work he recognized that plants were sexual, but he speaks of the "halitus" (breath, exhalation, perfume?) as the fertilizing agent. His views on the anthers and pistils, however, do not seem to have become generally known nor generally accepted.

In the year 1682 Nehemiah Grew, secretary of the Society of London, published his *Anatomy of Plants,* in which the nature of the stamens and pistils as the male and female organs of plants was distinctly asserted.

In 1694 Camerarius, a German botanist, also described the stamens as male organs and the pistils as female organs, in a book entitled *De Sexu Plantarum.*

In 1684 the French botanist Tournefort published his *Elements of Botany,* being the first attempt to define the exact limits of genera in vegetables. Most of his genera are still recognized in modern classifications. The great mistake of his classification, however, was his division of all plants into two classes, "Trees and Herbs"; the great merit, on the other hand, was the importance given to the study of the flower.

His scheme in outline is as follows:

Flower-bearing trees:

- Apetalous
  - Apetalous, properly so called
  - Amentaceæ, having catkins
- Petalous
  - Monopetalous
  - Polypetalous
    - Regular, Rosaceæ
    - Irregular, Papilionaceæ

Herbaceous plants without corolla:

1. Plants provided with stamens (wheat, barley, rice, etc.).
2. Flowerless plants with seeds (ferns, lichens, etc.).
3. Plants in which flowers and fruits are not apparent.

Simple-flowering herbaceous plants:

- Corolla monopetalous
  - Regular
  - Irregular
- Corolla polypetalous
  - Regular
  - Irregular

Compound flowering herbaceous plants:

Compositæ.

While Caesalpinus, Grew and Camerarius had promulgated the idea that plants possessed sexual parts, Tournefort remained sceptical and did not accept such views. However, his system of classification was so superior to previous systems that it brought order where confusion had previously existed, and modern scientific botany practically originated with Tournefort.

John Ray, an English botanist, published his *Historia Plantarum* in 1686; in this work he laid the foundations for modern natural systems of classification.

The main plan of Ray's system is as follows:

- Plants
  - Flowerless plants
  - Flowering plants
    - Monocotyledonous
    - Dicotyledonous

Divided into woody trees and herbaceous plants.
Further subdivisions based on the fruits.

In 1735 Linnæus presented the theory that stamens were male organs and pistils female organs of plants with such convincing emphasis that he compelled universal acceptance of this view. So little known, apparently, were the previously published views of Caesalpinus, Grew and Camerarius, that Linnaeus is generally considered to have been the first one to explain the nature of stamens and pistils and to firmly establish the fact that plants have sex. He rendered the theory popular by basing on it his system of classification, which is even to this day used in the schools in some European lands. While modifications of Ray's system constitute the Natural systems of modern times, the Linnæan system still forms an artificial key to the Natural systems, and the terms of this system are generally used in the description of plants and flowers.

That this demonstration of the sexual nature of plants was novel is seen from the interest, even enthusiasm, with which it was received. Erasmus Darwin, the grandfather of Charles Darwin, published a poem, "The Loves of the Flowers," which was illustrated with a series of fine steel engravings; and the rapid acceptance of the Linnæan system everywhere is generally known.

In 1789 Laurent de Jussieu published his *Genera Plantarum,* which is the basis of all modern natural systems of classification; we thus bring down the history of taxonomy to our own times.

During the last 75 or 100 years many botanists have attempted various systems of classification based on the consideration of the cotyledons; of polypetalous, monopetalous and apetalous flowers; upon the mode of insertion of the stamens; names have changed, things remain the same; and if in their details the series of families or orders present certain differences it only arises from the fact that a linear series is incompatible with the natural system, and that the connection of the intermediate groups may be expressed in various ways without affecting the general principles of the system.

While Linnæus established the main facts of the nature of the sexual organs in plants, the exact method of fertilization remained as obscure as that in the case of animals. The pollen was recognized as the matter which fecundated the ovary, but it remained a question as to the manner in which it did so.

It was at first thought that the grains of pollen broke on the stigmas and that the granules were absorbed by the stigma and went to form the embryo. In 1823 Amici, an Italian botanist, discovered the pollen-tubes. About 1837 Schleiden and Hoeckel announced that the vegetable embryo preëxisted as a germ within the pollen grains; it is carried at the end of the pollen-tube to the embryonic sac, where it develops into the seed or embryo.

Whether this was a *conscious* effort to harmonize the fertilization of plants with the views held so long in regard to animals and man, views that were apparently in harmony with the teachings of the Bible, that the seed or embryo issued from the sexual parts of the male, or father, I cannot say; that it was such there can be no doubt.

Schleiden's theory of the preëxistence of the embryo in the pollen grains was shown to be wrong by the observations of Brongniart, Amici, Mohl, Unger, Hoffmeister, and others.

In 1849 Tulasne published his studies on vegetable embryogeny and finally established the theory of fertilization as taught to-day, namely, that the male and female elements unite to form the embryo.

About 1876 the nuclear theory of fertilization was demonstrated. The successive steps in karyokinesis and the importance of chromosomes were demonstrated.

This does not mean that all the secrets of the process are clear; hundreds of men of science are still trying to solve further mysteries of heredity, etc., but these mysteries, while constituting the most fertile field for research and investigation, do not particularly interest us now in connection with this attempt to fix the niche which is filled by Linnæus in connection with the development of Vegetable Taxonomy.

PHYSICAL PHENOMENA PERTAINING TO SOLUTION AND CRYSTALLIZATION.*

BY H. J. NOVACK, M.D.

INTRODUCTION.

Molecules, Atoms, Electrons, Ethereal Corpuscles.

Research in physics and chemistry has, within recent years, wrought many changes in the fundamental theories of the constitution of matter.

Sir J. J. Thomson finds in the atom particles only one seventeen-hundredth of the mass of the atom of hydrogen—the lightest element known.

Sir William Ramsay seems to have demonstrated the transmutation of metals by producing lithium from copper.

Prof. J. N. Collie and Mr. H. Patterson, at the February, 1913, meeting of the Chemical Society in London, gave results of a series of experiments with electric charges, which indicated that synthesis of the atom had been accomplished.

The electric theory of matter with its ions and electrons does not influence the existence of the old atom, which has its position in science as a definite unit in the subdivision of matter, and is still the smallest unit of matter that enters into the ordinary chemical combination.

Admitting the electron as a subdivision of the atom, modern physicists have gone still further and tend to consider the electron as a deformation or modification of the universal Ether.

The Ether particle or corpuscle, theoretically, now holds the position of being the ultimate subdivision of matter, though its nature is still imperfectly understood.

In defining the undulatory theory of light, the Ether is assumed as a perfectly elastic medium of inconceivable tenuity, filling all space and the interspaces of all material objects. It is susceptible of being thrown into the vibrations constituting light by impulses incessantly emanating from all luminous objects.

This elastic tenuous medium must be conceived as filling all space and the interspaces of all material objects, which embraces not only the pores, intermolecular and interatomic spaces, but, according to modern theory, the interspaces between the electrons forming the atom.

The question now arises, since light is the result of "impulses incessantly emanating from all luminous objects," what is the subdivision of matter in a luminous object that is capable of impinging upon the Ether in order that a vibratory effect will result? It must be the electron, since the molecule and atom are too gross or too bulky, and admit the passage of the Ether waves through their interspaces.

In burning metallic magnesium, the forcible union of the atoms of oxygen with those of magnesium liberates a large number of electrons, which, impinging upon the Ether, causes its vibration, resulting in the phenomenon of light. The number of electrons liberated and the force with which they strike the Ether determine the volume and intensity of the light; while color is determined by the wave-length, which is directly proportional to the mass of the electron. The smaller the electron the shorter the wave resulting.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

A white smoke is visible when metallic magnesium is burned. This smoke is magnesium oxide, not in a molecular state, for as such it is invisible; but, in a coarser form, the result of the grouping together and contraction into a " particle " or " corpuscle " of a large number of molecules. These particles or corpuscles can be seen and approximately counted, when a little of the magnesium oxide smoke is collected upon a glass slide and viewed under the microscope. One grain of magnesium ribbon, after burning, is resolved into five hundred billion individual particles or corpuscles. Every particle is composed of a number of molecules, for example, ten thousand, each of which liberates a number of electrons, say a thousand. The number of electrons given off during the combustion of one grain of metallic magnesium would be equivalent approximately to five billion billion. This great number of electrons is liberated in one second or a fraction of a second, as in a flash. It is highly probable that light is the direct result of an enormous number of electrons being shot off from its source with such force and manner as to attain both the velocity and vibratory character of light.

NOTE.—A possible experiment to determine this would be the burning of a quantity of metallic magnesium, in a specially closed glass apparatus containing a sufficient amount of oxygen for its combustion, so arranged that nothing will enter or escape, except light. If a sufficient amount of magnesium were burned, then, according to the electron-emission theory, a loss of weight must result. Such loss of weight, no matter how trivial, would prove conclusively the nature of light.

SOLUTION.

The most peculiar factor of solution is that substances many times heavier than the solvent are held in suspension in defiance of the law of gravitation.

Mendelèeff believed that a solution is a homogeneous liquid system of unstable dissociating compounds of the solvent with the substance dissolved. In a homogeneous liquid like water, the molecules occur in a certain state of, although still mobile, stable equilibrium. When a substance *A* dissolves in water, its molecules form, with several molecules of water, systems A_nH_2O, which are so unstable that when surrounded by molecules of water they decompose and reform, so that *A* passes from one mass of molecules of water to another, and the molecules of water which were at this moment in harmonious motion with *A* in the form of the system A_nH_2O, in the next instant may have already succeeded in getting free. The addition of water or of molecules of *A* may either only alter the number of free molecules, which in their turn enter into systems A_nH_2O, or they may introduce conditions for the possibility of building up new systems A_mH_2O, where m is greater or less than n. If in the solution the relation of the molecules be the same as in the system A_mH_2O then the addition of fresh molecules of water or of *A* would be followed by the formation of new molecules A_nH_2O. The relative quantity, stability and composition of these systems or definite compounds will vary in one or another solution."

For the conception of the various phenomena and principles involved in solution, one must form a mental picture of the solid, liquid and gaseous states of matter.

In the solid, cohesion is greatest. The molecules are stationary, while the atoms and electrons possess definite motion similar to that of the liquid or gaseous state.

In the liquid, cohesion is moderate, and motion to a certain degree exists between the molecules. The atoms and electrons are as free in motion as in the

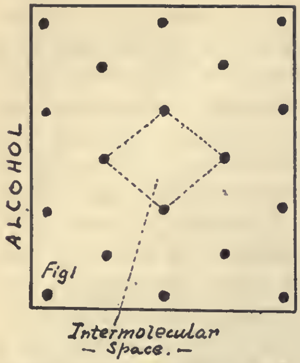

Fig 1

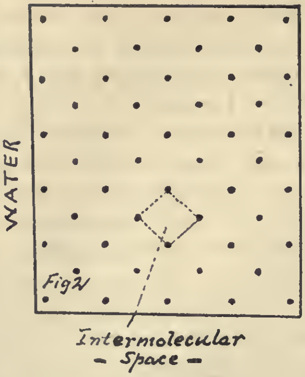

Fig 2

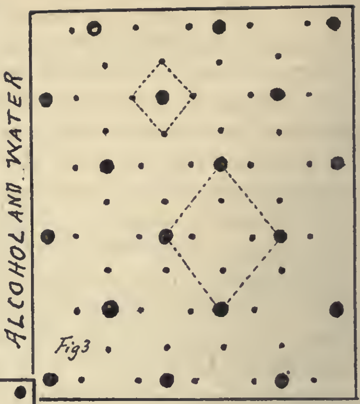

Fig 3

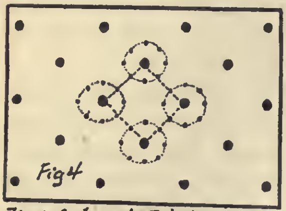

Fig 4

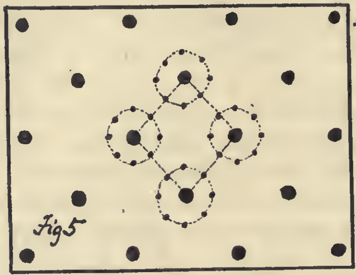

Fig 5

Fig 4.-Saturated interspace before increasing temperature.-Fig. 5.-Saturated interspace after raising temperature.

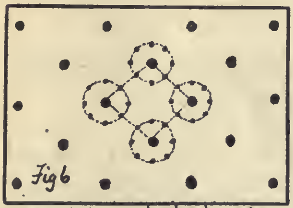

Fig 6

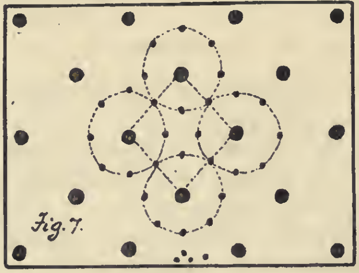

Fig. 7.

Fig. 6.-Saturated at 33°C.
Fig. 7.-Same solution heated above 33°C.

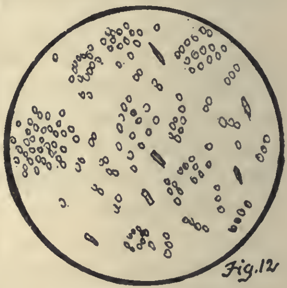

Fig. 12

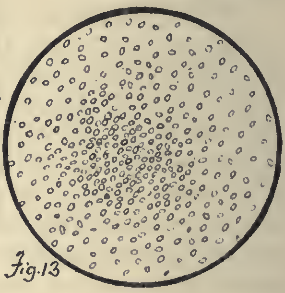

Fig. 13

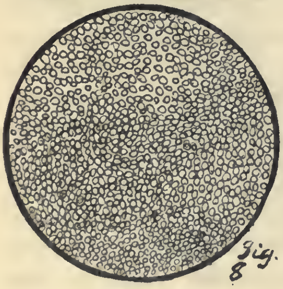

Fig. 8

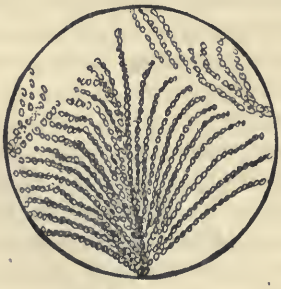

Fig. 10

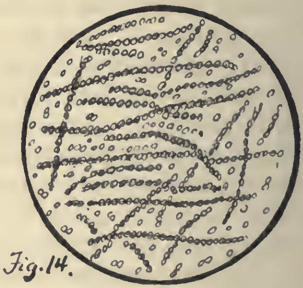

Fig. 14.

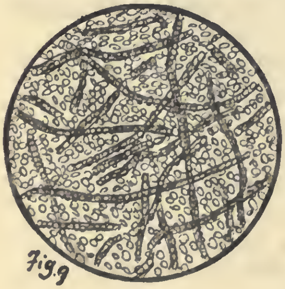

Fig. 9

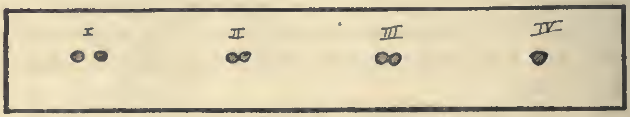

Fig. 11

gaseous or solid state. Density of liquids is dependent not only upon the volume and density of their molecules, but upon the size of their intermolecular spaces.

In the gaseous state, cohesion being absent, the molecules have free motion. The interspaces or distances between the molecules are as variable as the temperature and pressure.

The nature (size and shape) of the intermolecular spaces of a solvent and soluble substance is of utmost importance in determining the properties of the resulting solution, such as its increase or decrease in volume, point of saturation and degree of solubility. When alcohol is dissolved in water, though a solution of decreased density is obtained, the total volume is lessened. (Figs. 1, 2 and 3.)

In dissolving, a solid substance acquires a mobility of parts; that is, the molecules in a solid are at rest, while in a liquid they acquire motion. A gas, on the other hand, loses its elasticity and the motion of its molecules is decreased, due to the friction or resistance offered to its motion by the molecules of the solvent.

A substance distributed in water evidently breaks up, that is, becomes more like a gas, and acquires a greater mobility of parts. This mobility is apparent in the experiment by Gay-Lussac, with reference to diffusion of solutions, which he conducted in the cellars under the Paris Astronomical Observatory. The experiment lasted several months. Notwithstanding the uniformity of the temperature, the substance in solution, in time, ascended into the water and distributed itself uniformly through it, thus proving that there exists between the water and the substance dissolved in it a particular kind of attraction or striving for mutual interpenetration, in opposition to the force of gravity. Further, this effort or rate of diffusion is different for salt or sugar, or various other substances. It follows, therefore, that a peculiar force acts in solution and that solution is determined by a particular kind of motion which is proper to the substance dissolved and the solvent.

What is the peculiar force acting in solution which causes the ascension of a solid substance of an increased specific gravity, to the top of a solvent of less specific gravity, like salt in water? What is the particular kind of motion?

From many phenomena observed in the microscopic study of solutions and precipitations, it is reasonable to conclude that the molecules of a solution are in a state of constant rapid revolution, attaining sufficient speed to overcome the force of gravitation. For example, a solution may be likened to a number of aeroplanes in the air—the aeroplanes representing the salt molecules and the air the water or solvent. Without motion the aeroplanes could neither rise nor stay in the air. Without motion the molecules could neither rise, as in diffusion, nor stay in solution.

When an excess of a substance is added to a solution saturated by that substance, it will remain in its original state and not diffuse through the water. All the intermolecular spaces in the water of a saturated salt solution are occupied by the salt molecules in a state of motion. By raising the temperature the solubility of a salt increases, first, by imparting additional motion to the molecules so that they are able to stay in solution in groups instead of individual molecules: that is, while at the ordinary temperature single molecules remain in solution by virtue of the rapid motion they attain as a result of their small mass, an increase in temperature imparts such additional motion to the molecules that they are able to exist in solution in groups of two or more, depending upon the increase in temperature. Second, raising the temperature increases the solubility of a salt, inasmuch as the intermolecular spaces of the solvent already holding the salt to saturation also increase, admitting additional salt molecules. The solubility of sodium chloride varies comparatively little with the increase in temperature, which causes simultaneous increase in the intermolecular spaces of the water, as well as distances between the molecular groups of salt and molecules forming such groups (Figs. 4 and 5). The result is that at saturation the spaces of the solvent are filled, no matter what the temperature may be above the ordinary.

Glauber's salt or sodium sulphate diminishes in solubility after 33° C. This is explained by the fact that up to 33° C. the additional salt molecules are taken up by the molecular groups within the interspaces of the solvent; but after 33° C. the heat causes greater increase in the distances between the salt molecules than in the interspaces holding them, so that some of the molecules or groups of molecules are precipitated or dropped out (Figs. 6 and 7).

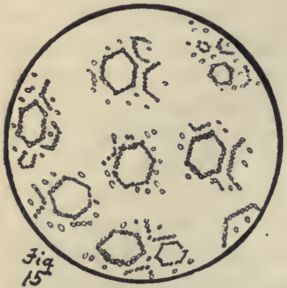
Fig 15

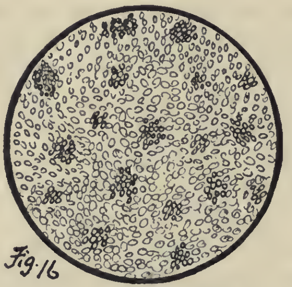
Fig. 16

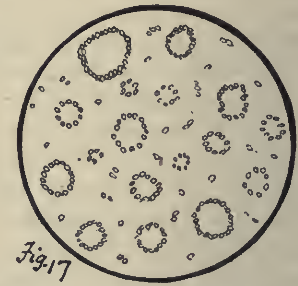
Fig. 17

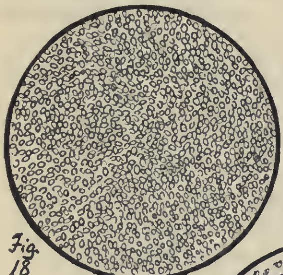
Fig. 18

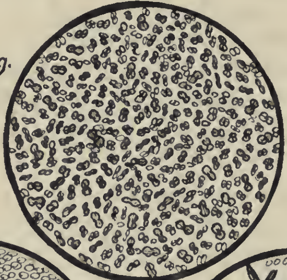
Fig. 19

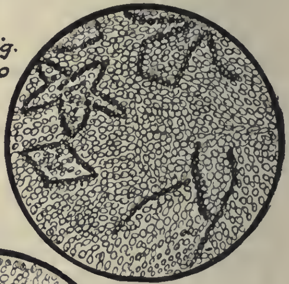
Fig. 20

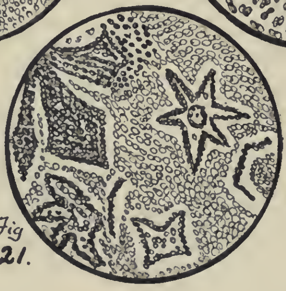
Fig 21.

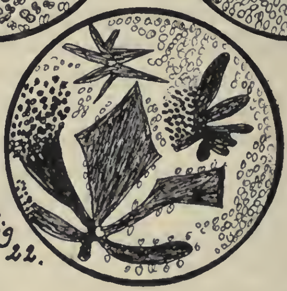
Fig 22.

When one salt is in solution and another added, the precipitation of the first may result if its molecules possess weaker motion than those of the salt added. Precipitation will also take place when the motion of the molecules of the two substances in solution is in opposite directions, the one with weaker motion falling to the bottom. For example, a powerful aeroplane in the air, meeting a smaller one, will unbalance and cause its precipitation to the ground.

When a solution of sodium chloride and silver nitrate are mixed, a chemical reaction takes place resulting in the formation of sodium nitrate, which remains in solution, and silver chloride, which is precipitated. The silver chloride is formed by the union of the silver of the silver nitrate and the chlorine of the sodium chloride, *and exists, for at least a fraction of a second, in a molecular state.* In such a state it would be capable of remaining in solution by its motion, were it not for the attraction or cohesion among the silver chloride molecules being greater than the separative power of the water molecules. It is interesting to note, with the aid of the microscope, the formation of the silver chloride "particles" out of the apparently clear solution. Evidently, a number of silver chloride molecules clump together as a nucleus towards which other silver chloride molecules are attracted, forming a very minute, rapidly-rotating visible speck. This small speck continues to increase in size by attracting around its surface additional molecules, and continues its motion until the particle becomes too heavy to remain suspended in the water, with the result that it falls motionless to the bottom of the glass slide holding the solution. The smaller the speck or particle the greater is its motion. These movements are an attenuated molecular motion similar to that existing in the molecules of any salt in solution. The properties of the actual molecules of a salt in solution are to a certain degree displayed by these particles or groupings of molecules. These phenomena will help to appreciate the cause of the Brownian movement or the motion of colloidal gold particles.

Ammonia dissolved in water evolves heat. This is due to its molecules being toned down from ultra-rapid motion in the gaseous state to that of solution. Heat is evolved as a result of contraction of its molecules, and then again, when already in solution, the rapid motion of the gaseous molecules also generates heat. This is why in the solution of gases in water a heat effect is observed.

This phenomenon is different in the solution of solid substances, because their passage from a solid to a liquid state is accompanied by an absorption of heat. Heat is required and used up in tearing the molecules of the solid asunder and to set them in motion. This causes the cooling effect when a solid is dissolved in water. Then again, when already in solution, the motion of the molecules may attain such great speed that heat will be generated. The definite chemical union of the solvent and substance dissolved evolves heat. Consequently, their sum may either be a cooling effect, as when the motion of the molecules is not sufficient to cause heat evolution while heat is used up in tearing the molecules apart and setting them in motion; or a heating effect is observed when the motion of the molecule is excessive or heat is generated by actual chemical combination.

One hundred and twenty-four grammes of sodium thiosulphate (employed in photography), $Na_2S_2O_3$, $5H_2O$, *melting* at 48° C., absorb 9700 units of heat; but, in dissolving in a large quantity of water at the ordinary temperature, 5700 units of heat are absorbed. In the melting of the salt, it takes 4000 units to heat it to a point where it will melt, *forming a saturated solution.* In a large quantity of water, the 124 grammes of salt take up less heat while dissolving, as it does not form a saturated solution. Then again, the separative action of the water upon the 124 grammes of salt is equivalent to 4000 heat-units, and, therefore, require only 5700 heat units to set the molecules of salt in motion or solution.

In most cases, solid substances in dissolving in water evolve heat, since their molecules, when once set in motion in the water, attain such great speed that heat is generated in excess of what is continually being taken up by the molecules entering the solution state. Thus, calcium chloride ($CaCl_2$), magnesium sulphate (anhydrous) ($MgSO_4$) and many other salts evolve heat in dissolving. For example, 60 grammes of magnesium sulphate evolve 10,000 units of heat in dissolving. Therefore, in the solution of solid bodies, either a cooling or a heating effect is produced.

Mendeleèeff believed "that the solution of a solid in water—although it is as with gases, a physical passage into a liquid state—is determined by its chemical affinity for water. This is clearly shown by the fact that in solution there occurs a diminution in volume, a change in the boiling point of the water, in the freezing point, and in many similar properties. If solution were physical and not a chemical phenomenon, it would naturally be accompanied by an increase and not by a diminution of volume. Contraction is the usual phenomenon accompanying solution, just as happens in the combination of substances when evidently new substances are produced."

The probability is that in solution we have a means of appreciating the nature of chemical affinity, since some solutions are close to the physical border, others median, and still others purely chemical. If diminution in volume, change in the boiling and freezing points are indicative of purely chemical phenomena, then, solution is chemical in nature. If, however, we admit that diminution in volume is the result of differences in the position of the molecules of the substance and solvent; that the boiling point is increased correspondingly with the concentration, because the solid or salt dissolved in the water takes up the extra heat to keep the molecules in extra rapid motion or rotation; that the freezing point is lowered, because it requires the extra reduction in temperature to stop the motion of the molecules of the substance dissolved in the water, then, solution is physical in nature; unless we admit these physical phenomena over the chemical borderline. For example, in winter, sea water will remain fluid, while river waters are frozen, because the salt molecules are in a state of motion in between the water molecules, which, at the ordinary freezing temperature, cannot rearrange themselves into the form of ice until the motion of the salt molecules ceases, requiring a lower temperature than 0° C.

"One hundred parts of water at 20° C. dissolve 34 parts of potassium nitrate; but, on the addition of sodium nitrate, the solubility of the potassium nitrate increases to 48 parts in 10 of water (Carnelly and Thomson)." The increase in solubility is due to the desiccation of one salt by the other, that is, the molecules of one get in between the molecules of the other substance, thereby aiding the water in lessening the cohesion of the less soluble salt. Then again, the molecules of a *slightly soluble* salt do not possess sufficient rapidity of motion to permit them to exist in solution in large groups; but, by the addition of a more soluble substance whose molecules must naturally possess greater motion, it is possible for them to act as a nucleus or center around which the molecules of the less soluble substance gather and are in this way held in solution in larger amounts.

Common salt is insoluble in oil, since there is no interpenetration of the salt by the molecules of oil or the oil by the molecules of salt. Therefore, it is the penetration between the molecules of a substance by a solvent, as well as the motion of the molecules of that substance in the solvent, that determines its ultimate solubility.

Solution is dependent upon a definite physical relation between the size and shape of the molecules and intermolecular spaces of the soluble substance and solvent. For example, water loosens very few molecules from iodine crystals, being unable to penetrate the interspaces of the iodine. Upon addition of potassium iodide, the iodine molecules are separated by the interpenetration of the potassium iodide molecules in solution. This is similar in a way to the physics of a colloidal gold solution, the result of an electric current tearing away gold particles. Water alone cannot do this unless aided by electricity, and is partly similar to the potassium iodide acting in solution upon crystals of iodine. Were the electric current capable of separating the gold into molecules, instead of groups of molecules in the form of particles, there would be formed an actual solution of gold in water and not a colloidal one, which it does form.

As regards their chemical composition, the colloids as a class are very complex—that is, they have a large molecular weight and a large molecular volume—in consequence of which they do not penetrate through membranes, and are easily subject to variations in their physical and chemical properties, owing to their complex structure and polymerism. They have but little chemical energy.

CRYSTALLIZATION.

By cooling a saturated solution or by slow evaporization, crystals of the substances dissolved are in many cases formed. The most remarkable circumstance is, that many solids, in separating out of an aqueous solution, retain a portion of water, forming crystallized solid substances which contain water. As a result of the linking together of the molecules of a crystalline substance, a number of molecules of water are enclosed and called "water of crystallization." Alum, copper sulphate, Glauber's salt, and magnesium sulphate contains such water; but, neither sal ammoniac, table salt, nitre, potassium chlorate, silver nitrate, nor sugar contains any water of crystallization. One and the same substance may separate out from a solution with or without water of crystallization, according to the temperature at which crystals are formed. Thus, common salt in crystallizing from its solution in water at the ordinary or higher temperature contains no water; but, if its separation from the solution takes place at a low temperature, namely, below -5° C., then the crystals contain 38 parts of water in 100. This is because at the ordinary temperature the salt molecules possess too much motion, while at a low temperature the motion of the salt molecules are toned down to a point similar to the motion of the water molecules, both being brought closer together so that crystals contain water of crystallization. Crystals of the same substance which separate out at different temperatures may contain different amounts of water of crystallization.

A supersaturated solution is similar to a saturated or even ordinary solution, except that the molecules of the salt forming the supersaturated solution are closer together or in larger groups. The slightest disturbance, such as the admittance of air or the dropping into the solution of a similar crystal, causes immediate crystallization. Thus, if a vessel holding the supersaturated solution of Glauber's salt be opened and a crystal of Glauber's salt be thrown in, crystallization suddenly takes place. The molecules nearest the crystal rush to attach themselves to its surface, and thus the molecules throughout the entire solution are thrown out of their regular orbits and fall on one another. A considerable rise in temperature is noticed during this rapid separation of crystals, due to the sudden cessation of the motion of the salt molecules and their contraction into crystals. Naturally, when two or more rapidly-rotating molecules suddenly come together so as to stop their motion, heat results.

In the majority of instances, where solid bodies are allowed to separate slowly from their solutions, they are found to assume regular geometrical forms. This tendency is much stronger in some substances than in others and it varies widely in the same substance under different physical conditions.

The regular external form of the crystal is its most striking feature, and the only one that, for a long time, was regarded as essential. But we now know that this form is only an outward expression of a regular internal structure.

The powers that are active in the formation of crystals and their mode of formation have been favorite subjects of speculation by past writers on crystallography. The microscope has, within recent years, aided in the study of this interesting subject, revealing some highly interesting and important phenomena.

Whenever molecules of a solid abound in a free state, their first manifestation of cohesion usually is in the form of minute microscopic particles, varying in volume and density with the substance forming them. These particles may be termed "primary crystalline molecules or particles," since many crystals can be traced directly to the arrangement and contraction of these particles into forms. The first microscopically visible trace of precipitation is in the form of these particles—which is the result of cohesion between the molecules thrown out of solution. Smoke of any kind is the result of cohesion of the molecules into primary crystalline particles. This particle is so universal that it may be called the "chemical cell."

The following observations will help elucidate the subject under consideration:

Magnesium Oxide.—A fraction of a grain of metallic magnesium is ignited and the smoke or oxide collected on a glass slide.

When viewed under the microscope, a large number of primary crystalline particles are visible. These particles are formed directly from the nascent molecules of the magnesium oxide as the metal burns, by attraction around one or more molecules as a nucleus or center in rapid motion of additional molecules, finally forming the smoke particle. After some time, the particles are gradually drawn closer together, and result in a sort of linear crystallization (Figs. 8 and 9).

Definite crystals never form. When a small drop of water is added to the slide and particles loosened from the surface by means of a needle, very active motion will be noticed. There are approximately five hundred to a thousand billion individual particles formed by the combustion of one grain of magnesium metal. Every particle measures approximately one twenty-thousandth of an inch in diameter.

Cupric Chloride.—A drop of a solution of this substance (4 grains to the ounce) is placed on a slide and viewed under the microscope.

A number of primary crystalline particles possessing active motion are noticed. After they fall to the bottom of the slide, the particles are seen to arrange themselves into forms by "looking for a place." A particle can often be seen to go between two other separate particles and make one out of all by "fusion."

A drop of a solution (¼ grain to the ounce) is placed on a slide and gently evaporated over a Bunsen flame. When the slide is examined, the appearance is like Fig. 10, the particles having a tendency to arrange or crystallize along lines radiating from a single point.

Arsenic Trioxide.—One five-thousandth of a grain on a needle point is heated in a Bunsen flame and the sublimate caught on a glass slide. A drop of water is placed over the sublimate and particles are disturbed by rubbing a needle over them.

The detached particles acquire definite and pronounced motion. Groups of particles also move, due to the impacts by invisible or undeveloped particles, as well as the transference of motion through the water by sympathy. There are approximately two trillion particles to every grain of this substance.

Cuprous Oxide (*Red*).—Being insoluble, one-fourth of a grain is mixed with one ounce of water.

Particles display very good motion. They seem to attack each other, separate, and return after a moment to repeat attack. Often, after persistent watching of two particular particles in process of attraction and repulsion, they may be seen to gradually unite into one. Manganese peroxide shows similar phenomena (Fig. 11).

Motion continues for a long time and the activity of the actual molecules imparts motion to any minute foreign body or fully developed particle. No crystals are formed in the water. The most is the union of two or formation of clumps.

Stannous Chloride.—One-fiftieth or one-twentieth of a grain to the ounce of water.

This substance absorbs oxygen from the air and changes to stannic oxide, precipitating as such. So-called life or motion is, therefore, very pronounced from the very faint speck of freshly formed stearic oxide, until it forms a fully developed particle of stannic oxide. It is strongly crystalline—one one-hundredth of a grain to one ounce of water shows crystallization and motion of particles.

Mercuric Iodide.—When mixed with water, motionless clumps are noticed, the substance being insoluble. When a little mercuric iodide on a pin-point is heated in a Bunsen flame and the vapor or sublimate collected on a slide, a good field of primary particles is procured.

The actual molecules actually form the gross molecules as soon as they strike the glass. When a drop of water is added, partial crystallization takes place. By drawing a needle over the field some particles are dislodged from their attachment and display motion for some time (Fig. 12).

Cadmium Chloride.—One-eighth of a grain to the ounce of water renders a good field of individual particles displaying fair motion (Fig. 13). When a little is heated, it volatilizes into the brown oxide, which can be caught on a glass slide. A small drop of water is placed on the sublimate and what may be termed partial crystallization takes place among the primary particles (Fig. 14).

Boric Acid.—A small crystal is heated and the sublimate collected on a cool slide.

The sublimate does not appear evenly over the entire slide when viewed microscopically. Instead, a number of particles, partially-formed crystals and crystals all forming a group are noticed away from another similar group (Fig. 15).

It seems that, crystallization being very strong in the sublimate, crystals form the instant the particles strike the glass surface. The contraction gives the appearance of groups. Hexagons are the prevailing forms in this substance. The particles are often visible in the partially-formed hexagon and are of a light-greenish color.

Calomel.—A small speck of calomel is vaporized and the sublimate collected on a slide. Individual crystalline particles are visible and interspersed are seen darker and larger bodies (Fig. 16), evidently an attempt at partial crystallization upon condensation on the slide. When a small drop of water is added to sublimate and particles loosened by a needle, they display motion.

Gold Chloride.—One-quarter grain to ounce of water.

This substance is one of the best for studying the life or motion of the individual particle. From a faint speck particles are seen to develop, and when heavy enough, sink to the bottom or surface of slide. Two particles may unite while in process of development or motion, or two may unite after falling near each other. The brass of the lens helps precipitate the solution, since no cover slips are used in making observations. Mercury bichloride and silver nitrate give similar phenomena.

Sulphur.—A small particle of sulphur is ignited and the smoke collected on a cool slide. Upon this slide are sulphuric acid—formed by the sulphur dioxide (gas) and sulphur trioxide (gas) with the moisture of the air—and a white deposit of pure resublimed sulphur. This sulphur deposit is in the form of crystalline particles. The slight moisture due to the little sulphuric acid formed permits the particles to float freely, and they are, therefore, very active. Particles are seen to run here and there and suddenly fuse with each other. The rings or serpent forms appear as if they had a capsule. This is due to the contraction around the outside causing better fusion of the particles.

A drop of water is placed on a slide in a hanging position so as to catch the fumes of the burning sulphur. When viewed under the microscope, a swarming bunch of particles are noticed. Sometimes they float on top of the water arranged in circles, like Fig. 17.

Copper Acetate.—A quarter of a grain is dissolved in an ounce of water. A small drop is placed on a glass slide and very gradually evaporated, at the same time the slide is studied microscopically.

The following five stages can be differentiated:

First, the development of the "primary crystalline particles" or "gross molecules" from the actual molecules of the solution (Fig. 18).

Second, the formation of pairs from the union of two primary particles (Fig. 19).

Third, a faint appearance or tendency towards arrangement in lines and shapes (Fig. 20).

Fourth, closer attraction and definite arrangement, the separate particles still being visible; "semi-fusion" (Fig. 21).

Fifth, complete "fusion," after which all lines of demarcation and traces of the individual particles are obliterated, thus forming a complete crystal (Fig. 22).

As soon as attraction between the particles and arrangement are manifested, a clear area containing fewer or no particles becomes noticeable in the vicinity of the crystal in formation or formed crystal.

CONCLUSION.

The various substances under experimentation, of which the preceding are but a few examples, were all reduced to a common, initial or fundamental form—"primary crystalline particles" or "gross molecules"—from which the development or formation of crystals can visibly be traced.

Most characteristic is the fact that these particles display very decided activity, so that it would be difficult to distinguish them from various living organisms of a low order. They possess the power of attraction and repulsion for each other. A particle already attached to several others may suddenly be seen to tear itself away from its fixed position and dart across a distance, to become attached to another particle or group of particles.

In short, the first visible trace of crystallization is the formation, out of the actual molecules in solution, of a very minute particle, which displays the phenomenon of definite motion, has the power of attraction and repulsion, and continues to increase in size by accumulation while in motion of additional actual molecules, until its mass has become so heavy as to fall to the bottom of the solution, where it combines or attaches itself to other similar particles, forming crystals.

As the atomic arrangement determines the molecule, and the molecular arrangement the "primary crystalline particles," so the arrangement of the "primary crystalline particles" determines the shape or form of the crystalline substance.

DIAGNOSTIC REAGENTS AND THEIR USES IN THE DIAGNOSIS OF INFECTIOUS DISEASES.*

BY F. E. STEWART, PH.G., M.D., PHAR.D.

In my paper read before the Scientific Section of the A. Ph. A., at the San Francisco meeting, August, 1915, entitled "Principles Underlying the Use of Vaccines, Bacterins, Antitoxins and Immune Serums as Agents for the Prevention and Cure of Infectious Diseases," attention was called to the properties of immune serum, that is, serum from an animal immunized against an infective agent.

Immune serum manifests four specific actions assumed to be due to the presence of antibodies, namely: (*a*) antitoxic action; (*b*) bactericidal and lysogenic action; (*c*) opsonic action; (*d*) agglutinating and closely allied precipitating action. The antitoxic action is due to the presence of antitoxin. The bactericidal and lysogenic is assumed to be due to the presence of an antibody to which the name *bacteriolysin* has been applied.[1] The opsonic action is assumed to be due to *opsonins.* The word opsonin is from Greek *opsono,* to prepare food for. The specific opsonin developed in the blood serum during the process of immunization has the property of preparing the bacteria for ingestion and digestion by the *leucocytes,* or white corpuscles of the blood. When a small quantity of immune serum is added to a suspension of the corresponding bacterium, the organism becomes agglutinated into clumps and motility is suspended or destroyed. This action is assumed to be due to the presence of *agglutinins.* Advantage is taken of the phenomena in diagnosing typhoid fever, as will appear later. The immune serum may not only cause agglutination, but, when added to the filtrate of a culture of the corresponding bacterium, may produce a cloudiness and afterwards a precipitate.

Antigen.—An antigen is a protein substance which, introduced into the animal body, stimulates the body cells to produce antibodies. Practically any protein substance may serve as antigen.

Character of Antigens.—There are two views on this subject. Vaughan believes that the various so-called antibodies are merely manifestations of enzyme action. He points out that when any protein substance, either living or dead, is introduced into the animal body the body cells are stimulated to produce proteolytic enzymes, or digestive ferments, which have the power of digesting and destroying the protein substance referred to. When a protein substance is taken into the alimentary canal and digested by the various enzymes prepared by the glands emptying their contents into this canal, the digestion is called *enteral.* When a protein substance is injected into the tissues, the body cells at the point of injection are stimulated to produce specific digestive enzymes; this digestion is known as *parenteral digestion.* Vaughan explains infection and immunity on this basis, as stated in my former article. Certain body cells, having acquired the power of producing enzymes or digestive ferments resulting from an infection, are in position to respond promptly when again stimulated by an attack of an infective agent, and in this way the body acquires immunity of greater or less degree and duration against subsequent attacks. Immunity following an attack of typhoid fever and other infectious diseases is thus accounted for. It will thus be seen that the terms "antibody" and "enzyme" practically represent the same principles.

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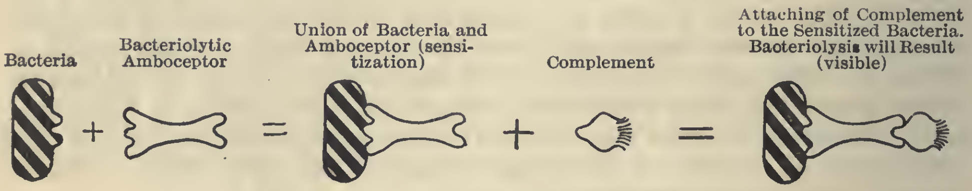
* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

[1] This action is due to the combined effect of two substances, amboceptor and complement. There is some question as to whether or not the bactericidal amboceptor is identical with the complement-fixing amboceptor concerned in the Wassermann reaction. For the purposes of this paper a final answer is unessential.

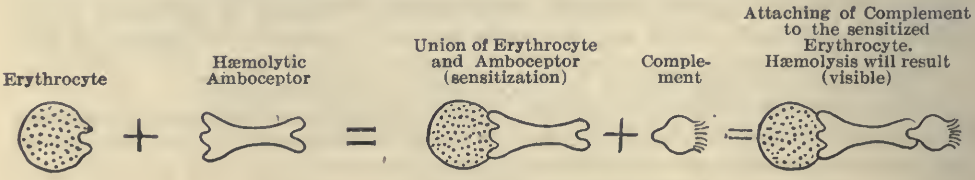
Bacteriolysis.—Bacteriolysis is assumed to be due to the production in the blood of the immunized individual of an antibody to which the name *bacteriolysin* has been given. According to Vaughan, bacteriolysis is due to the digestive action of a proteolytic enzyme produced by the body cells in response to stimulation by the appropriate protein. According to the same authority, all enzymes are made up of two factors, namely: complement and amboceptor. It is the function of the complement to digest the antigen. This it cannot do until the antigen is acted upon or sensitized by the amboceptor. What really occurs as a result of introducing a protein substance into the animal body is the production, not of an enzyme, but of the specific part of an enzyme, namely, the amboceptor. Complement is not specific—it exists normally in the blood of all animals, and is practically the same, no matter from what source derived.

We therefore have in the production of bacteriolysis three factors, namely: the bacterium, the specific amboceptor or antibody, and the complement. When these three factors react, bacteriolysis occurs. (See Fig. 1.) In this reaction the complement is absorbed or fixed by its attachment to the sensitized bacteria.


Bacteria
Bacteriolytic Amboceptor
Union of Bacteria and Amboceptor (sensitization)
Complement
Attaching of Complement to the Sensitized Bacteria. Bacteriolysis will Result (visible)
+
=
+
=

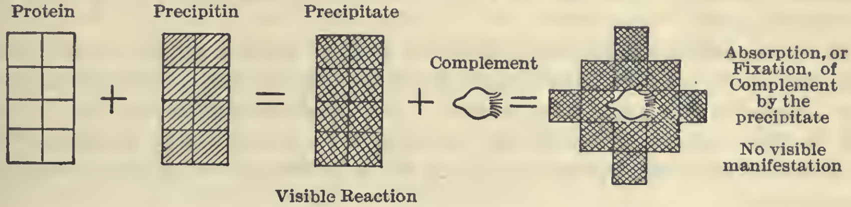
FIXATION OF COMPLEMENT BY BACTERIOLYSIS

Hemolysin.—In a similar manner when an animal, say a rabbit, is immunized against the red corpuscles of the sheep, the blood serum of such an animal possesses lysogenic action for the red corpuscles of the sheep's blood, but does not possess lysogenic action toward the red corpuscles of any other kind of animal's blood. This lysogenic action in the case of red blood corpuscles is known as *hemolysis,* and it is assumed by some that the cause of the hemolysis is due to the presence of another antibody, namely: a peculiar specific principle in the immune serum to which the name *specific hemolysis* has been given. But this specific hemolysin alone will not cause hemolysis. Hemolysis is the result of the action of three factors: *i. e.,* red corpuscles, specific hemolysin and complement. These three react, causing the disintegration or breaking down of the stroma of the red corpuscles, and liberates the hemoglobin into the surrounding fluid, which becomes a clear, red, transparent solution instead of the opaque suspension of red corpuscles. (See Fig. 2.) In this reaction the complement is absorbed or fixed by its attachment to the sensitized erythrocyte.


Erythrocyte
Hæmolytic Amboceptor
Union of Erythrocyte and Amboceptor (sensitization)
Complement
Attaching of Complement to the sensitized Erythrocyte. Hæmolysis will result (visible)
+
=
+
=

FIXATION OF COMPLEMENT BY HÆMOLYSIS

Precipitin Reaction.—If any unformed protein substance is introduced into the body of an animal, the blood serum of such an animal, when added to a solution of the same protein, will produce a precipitin. This phenomenon is assumed to be due to a specific substance in the serum formed during the process of immunization, to which the name *Precipitin* has been given. Now, if to a mixture of this immune serum and the precipitate referred to, complement is added, no visible manifestation will occur. However, the complement will be fixed by the precipitate. (See Fig. 3.)



FIXATION OF COMPLEMENT BY PRECIPITIN REACTION

Bordet-Gengou Phenomenon.—We are now in a position to consider the Bordet-Gengou phenomenon of complement fixation upon which is based the Wassermann reaction and the several modifications of the same used in the diagnosis of syphilis.

In the above three figures it will be noted that the complement united with the antigen-antibody combination and, therefore, became fixed. This reaction, however, is invisible and means must be had to determine that it has or has not taken place. For this purpose a so-called hemolytic system is employed. Let us consider for a moment that we have placed a suspension of antigen, antibody and complement, for example. Place bacteria, bacteriolytic amboceptor and complement in a test-tube in the incubator. Bacteriolysis occurs during incubation. Now, if we add to the test-tube a hemolytic system (erythrocytes and hemolytic amboceptor), and again incubate, no hemolysis will occur because the complement has been used up in the bacteriolysis which preceded. (See Fig. 4.)

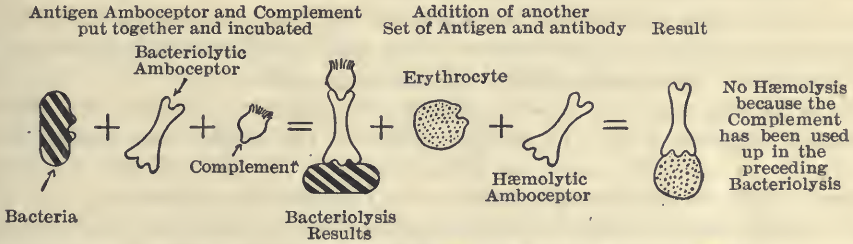

Antigen Amboceptor and Complement put together and incubated
Addition of another Set of Antigen and antibody
Result
Bacteriolytic Amboceptor
Erythrocyte
Complement
No Hæmolysis because the Complement has been used up in the preceding Bacteriolysis
Hæmolytic Amboceptor
Bacteria
Bacteriolysis Results

ILLUSTRATION OF PHENOMENA OF BORDET AND GENGOU

If the bacteriolytic amboceptor had been omitted, bacteriolysis would not have occurred during the first incubation. This would have been shown by the hemolysis, which in that case would have followed the second incubation because the complement, which could not have been fixed by the bacteria in the absence of bacteriolytic amboceptor, was free to unite with the erythrocytes and hemolytic amboceptor and break down the red blood cells liberating the hemoglobin (a reaction which is plainly visible).

This phenomenon was discovered by Bordet and Gengou in 1901. It depends upon the fact that when an antigen is mixed with its inactivated[2] antiserum, in the presence of complement, the complement is fixed by the antigen combination and disappears from the mixture. If such a mixture is allowed to stand at a suitable temperature for an hour or more, and to it is added a suspension of erythrocytes, together with a suitable quantity of inactivated hemolytic amboceptor, hemolysis will not take place, as has already been pointed out, since there is no free complement present to complete the hemolytic system. If, on the other hand, the original mixture contains no antibody for the antigen used, the complement present is not fixed and is available for the activation of the hemolytic serum later added.

The reaction depends upon the fact that neither antigen alone, nor amboceptor (antibody) alone, can fix complement, but that this fixation is accomplished only by the antigen-amboceptor complement. Any specific amboceptor can be determined by this method, provided the homologous or stimulating antigen is used; and, on the other hand, by the use of a known antibody a suggested antigen may be determined.

This indirect method of determining the presence of a specific reaction between antigen and antibody has been extensively applied to various infectious diseases with more or less success. As stated by Kolmer,[3] the complement-fixation methods have their great value, and are probably best known, in the serum diagnosis of syphilis,—the biologic syphilitic reaction of Wassermann, Neisser, Bruch, and Detre.

The Wassermann Reaction.—In their original experiments Wassermann and his collaborators used salt-solution extracts of syphilitic organs. Various modifications have been suggested, and at present the methods of preparing antigens may be divided into seven different classes as follows:

(1) Aqueous extract of syphilitic livers.
(2) Alcoholic extracts of syphilitic liver.
(3) Alcoholic extracts of normal organs.
(4) Alcoholic extracts of normal organs re-enforced with cholesterin.
(5) Acetone-insoluble lipoids.
(6) Lecithin and cholesterin.
(7) Aqueous extracts of pallidum culture.

It is evident from the above that the term "antigen," as originally used in the Wassermann reaction, is a misnomer. The only specific biological antigen is a pure culture of *Treponema pallidum* (*Spirochœta pallidum*).

In performing the test by the original Wassermann system, five different factors are required, *i. e.*: (1) antigen, which in the original test consisted of a salt solution of syphilitic organ, as already stated; (2) the patient's serum; (3) complement (fresh guinea-pig's serum); (4) hemolytic amboceptor, *i. e.*, blood from a rabbit immunized against the red corpuscles of a sheep; (5) red corpuscles from the blood of a sheep. When the syphilitic antigen, suspected serum and complement are incubated together the complement will or will not be fixed, depending upon whether or not the suspected serum contains syphilitic amboceptor. If the serum contains syphilitic amboceptor, it will fix the complement. However, as there is no visible manifestation of this when it occurs, it becomes necessary to have an indicator. This indicator consists of the other two factors, namely: a suspension of sheep corpuscles and serum from a rabbit previously immunized against sheep corpuscles, and therefore containing hemolytic sheep amboceptor. This is added to the mixture in the test-tube. If, following the addition of this second set of antigen and amboceptor, *i. e.,* red blood corpuscles of the sheep and serum of rabbit immunized against sheep corpuscles, hemolysis (lysis of the sheep corpuscles) occurs, it shows that the complement was free in the mixture in the test-tube, and, therefore, the suspected serum contains no syphilitic amboceptor. If, on the contrary, hemolysis does *not* occur, it is evident that the suspected serum contains syphilitic amboceptor, and that the reaction *did* occur in the test-tube, resulting in the fixing of the complement by the antigen-amboceptor combination. As at present carried out any one of the above-mentioned antigens may be employed in the reaction, the most common probably being No. 5—Acetone-insoluble lipoids—as recommended by Noguchi.

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[2] Fresh serum heated to from 55° to 56° C. to destroy the complement. This process is called "inactivation," and the heated serum is called "inactivated" serum.

[3] "Infection, Immunity and Specific Therapy," John A. Kolmer, M.D., Ph.D., W. B. Saunders Co., Phila., Publishers, 1915.

The Noguchi Modification of the Wassermann Reaction.—Among the large number of modifications of the original syphilis reaction that have been devised, that of Noguchi is acknowledged to be of distinct value.

In presenting his modification, Noguchi[4] says that "the chief cause why the original method of Wassermann was so difficult to carry out is because in that system the reagents are so unstable and associated with many other undesirable side actions that these must be used soon after being prepared." He calls attention to the fact that these difficulties are inherent to most of the modifications described.

To overcome these difficulties Noguchi has suggested a method whereby the preparation of the most important and difficult reagents is done by competent laboratory workers in a regular biological laboratory and distributed among those who understand how to use the apparatus. The reagents for making the test are as follows:

Several 1-Cc. pipettes, graduated to 0.1 Cc., are required; also two 10-Cc. pipettes graduated to 0.1 Cc., and several 1-Cc. pipettes graduated to 0.01 Cc. A number of small test-tubes are also required, the best dimensions being 10 × 1 cm. Two of these tubes are necessary for each test, and four tubes for controls in each series of tests. Of course the total number needed will depend upon the amount of work to be done. In addition to the above apparatus, a number of larger test-tubes, or very small flasks, for mixing the blood suspension, a number of larger flasks or bottles as containers of physiological salt solution are required; also glass tubing, about 4 mm. in bore, for making capillary pipettes. A few test-tube racks with two parallel rows of holes must be provided; also a pair of scissors, a paraffin pencil, centrifuge and incubator. This apparatus must be chemically clean.

The reagents employed are: (1) patient's serum; (2) serum from individual known to be in health; (3) serum from individual known to be syphilitic; (4) suspension of red corpuscles from the human blood; (5) diluted antigen; (6) complement; (7) amboceptor; (8) physiological salt solution.

The blood required may be obtained by puncturing the finger, or in small children the lobe of the ear should be punctured. The blood will come in drops. When the finger is selected, it should be tightly squeezed in such a manner as to drive the blood to the extremity, or bound with a narrow bandage starting at the proximal end, to accomplish the same object. A prick is then made with a sterile needle, as illustrated in the cut. For collecting the blood, Wright's capsules are the best suited. The blood is collected by touching the curved end of the needle as it oozes from the puncture. When sufficient blood has been collected the straight, empty capillary end of the capsule is sealed with a flame. When cool, the blood is driven[5] from the bent end of the capsule to the straight end, then the bent end is also sealed with a flame. By this method the capsule can be sealed without heating the blood.

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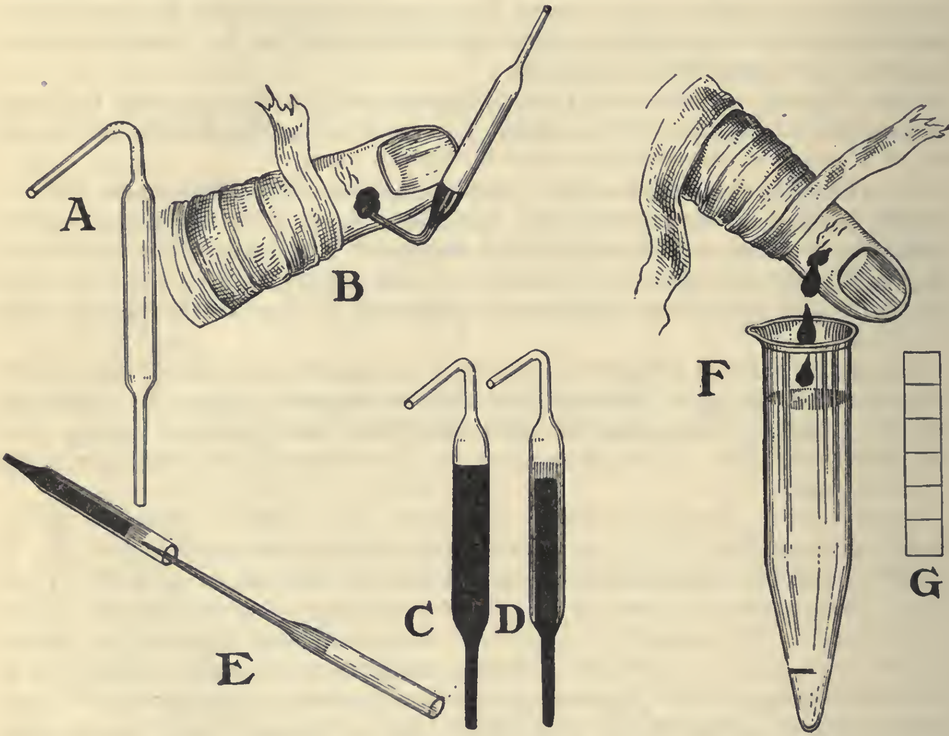
[4] *Serum Diagnosis of Syphilis and Luetin Reaction,* by Hideyo Noguchi, M.D., M.Sc., associate member of the Rockefeller Institute for Medical Research. Published by J. B. Lippincott Company, Philadelphia (third ed.), 1912.

The capsule is then set aside to permit the clotting of the blood, or the process is hastened by centrifugalization.



A represents the capsule for collecting blood from the patient. *B* represents the method of obtaining the patient's blood. *C* represents the blood after it has been shaken down to the straight end of the capsule. The capsule is then set aside to allow the serum to separate, or it may be centrifugalized. *D* represents the clotted blood and the separated serum. *E*, capillary pipettes used to collect serum and drop it into test-tube. *F* illustrates the procedure for obtaining blood for the suspension of human red blood-corpuscles. *G* represents the antihuman amboceptor paper, which may be obtained from the regular biological laboratories.

The suspension of red corpuscles can be prepared with the blood of the patient being examined. The standard amount of the suspension required is 1 Cc. of a one percent, or 0.1 Cc. of a ten-percent for each tube. Thus, if 1 Cc. of blood is taken from the patient, it will supply enough corpuscles to distribute in 100 test-tubes. The blood from one patient will suffice for preparing suspension for testing several patients.

"Supposing one wishes to make 1 Cc., sufficient for 10 tubes (or less), including controls. Take an ordinary centrifuge tube, put into it with a graduated pipette 1 Cc. of sodium chloride (0.9 percent) solution. Mark the tube at the surface of the liquid with a paraffin pencil or file. Now fill up with sodium chloride solution to within half inch of the top and mark at the surface of the liquid. Draw out 0.1 Cc. and discard it. Allow blood to drop into the tube until it reaches the last mark on the tube. Centrifugalize and decant the supernatant fluid. Fill the tube with saline solution to the first mark, 1 Cc. This represents the suspension of washed red corpuscles in saline solution from 10 percent whole blood. 0.1 Cc. is the quantity used for each tube."

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[5] Shake the tube the same as a clinical thermometer is shaken.

Antigen.—The regular biological laboratories furnish antigen prepared in the following manner: "Liver or heart tissue is rubbed with sand and then extracted with absolute alcohol by maceration. Ten grammes of tissues are macerated in 100 Cc. of alcohol for one week at 37° C., shaking the container every day. The mixture is then filtered, and the filtrate evaporated to an extractive consistence and dissolved in ether until clear. Pour this solution into a large quantity of acetone. The acetone precipitates certain lipoid substances which are then collected and redissolved in methyl alcohol, in ratio of 3 percent. This constitutes the antigen solution. For use, mix one part of this with 9 parts, 0.9 percent, sodium chloride solution. This dilution should not cause hemolysis in an amount of 0.4 Cc., and 0.4 Cc. should not inhibit hemolysis. The quantity for each tube should be 0.1 Cc., containing at least 5 units."

Testing Antigen.—The concentrated antigen solution furnished by the biological laboratory should be tested in the following way:

"Dilute the concentrated alcoholic solution with 9 parts sodium chloride solution (0.9 percent). This makes an opalescent liquid.

Test it for: (1) Hemolytic power: 0.4 Cc. should not be hemolytic; (2) anticomplementary power: 0.4 Cc. should not inhibit hemolysis; (3) antigenic power: 0.02 Cc. must give complete inhibition with syphilitic serum.

Five units, or 0.1 Cc., of the diluted solution is to be used in each tube..

Amboceptor.—This may be obtained from the regular biological laboratories. It is prepared by repeatedly injecting washed human blood corpuscles (erythrocytes) into rabbits, at intervals of three to five days. Ten days are allowed to elapse after the last injection. The rabbits are then bled and the serum collected. Paper is now saturated with this serum and allowed to dry. The paper is cut in strips and set aside until wanted for use. In this form amboceptor will keep for a considerable length of time.

"Amboceptor paper is standardized by measuring its specific gravity. The measurement of specific activity consists in finding the amount of amboceptor necessary to cause hemolysis in 1 Cc. of a ten-percent suspension of washed human red corpuscles with 0.4 Cc. of fresh guinea-pig serum. Incubate this at a temperature of 37° C. for one hour. The quantity of paper necessary to cause hemolysis under these conditions is known as one unit. In the syphilis test use two units."

Complement.—"Guinea-pigs are bled into a sterile Petri dish. This can be done several hours before the tests are to be made, and the Petri dish kept in the dark at room temperature until desired for use. If the serum has not separated by the time it is wanted, place the Petri dish containing the blood into an incubator at 37° C. for ten or fifteen minutes. Then pipette off the serum. Any corpuscles remaining in the serum must be separated by centrifugalizing. As complement rapidly deteriorates and no method has yet been devised to preserve its activity for more than a few hours, it cannot be supplied commercially. Fresh guinea-pig serum should be used, 0.04 Cc. to each tube.

Method of procedure.—Having on hand the necessary apparatus and reagents, the following procedure for making the tests is adopted:

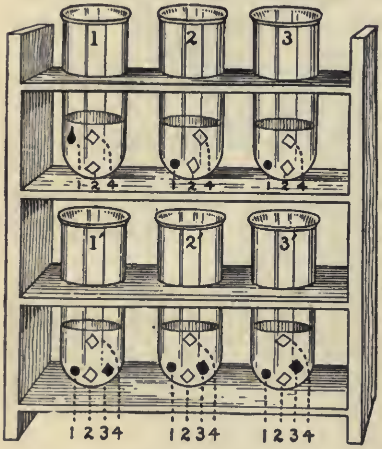
(1) Into each of the tubes, 1 and 1′ (see H), is placed one drop of the patient's serum. Use four drops when inactivated serum is used.

(2) Into each of the tubes, 2 and 2′, is placed one drop of serum from an individual known to be in health. Use four drops, when inactivated serum is used.

(3) Into each of the tubes, 3 and 3′, is placed one drop of serum from the blood of an individual known to be syphilitic. Four drops should be used when an inactivated serum is employed. A drop of serum is represented by the figures 1-1-1.

(4) Into all the tubes is placed 0.04 Cc. of complement, *i. e.,* fresh guinea-pig serum, marked 2-2-2. This quantity is readily obtained by diluting 1 Cc. fresh guinea-pig serum with 9.0 Cc. sterile normal saline solution (0.9 percent). Then, 0.4 Cc. of the dilution represents 0.04 Cc. of guinea-pig serum.

(5) Into each of the tubes is placed 0.3 or 0.4 Cc. (as stated in table) sodium chloride solution (0.9 percent).



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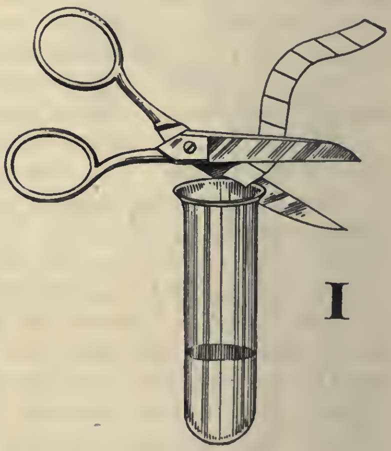

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TABLE SHOWING ARRANGEMENT OF TEST-TUBES AND REAGENTS

Tube.	NaCl.	.1 : 10 Antigen.	Serum.	1 : 10 Complement.		1 : 10 Corp.	Amboceptor.	
1	0.4	0	1 gtt. patient's	.4	Incubate 1 hour	.1	2 units	Incubate 1 hour
1′	0.3	0.1	1 gtt. patient's	.4		.1	2 units	
2	0.4	0	1 gtt. normal	.4		.1	2 units	
2′	0.3	0.1	1 gtt. normal	.4		.1	2 units	
3	0.4	0	1 gtt. syphilitic	.4		.1	2 units	
3′	0.3	0.1	1 gtt. syphilitic	.4		.1	2 units	

(6) Into each of the tubes, 1′, 2′ and 3′, is placed 0.1 Cc. of diluted antigen (1:10) solution, represented by the figures 3-3-3.

The tubes are then placed in a water-bath at 37° C., the temperature of the body, for one-half hour (or in an incubator for one hour). During this time, in any tubes containing serum from a syphilitic individual, the antigen will unite with the syphilitic amboceptor (antibody) in the syphilitic serum and these two will in turn unite with the complement, fixing it. After incubation, the tubes are removed, and each tube receives 0.1 Cc. of red corpuscle suspension and one square of amboceptor paper (see I), marked 4-4-4 (H). The tubes are then returned to the incubator, where they are allowed to stand (shaking gently every 15 minutes) until hemolysis has occurred in tubes 1, 2 and 3, which are controls because they contain no antigen, and in the tube to which was added one drop of known healthy serum—that is, tube 2′. The tube 3′, containing a drop of serum from a known syphilitic individual, will still remain cloudy, as it was when placed in the incubator, while the tube 1′, containing serum from the patient, will be a bright, clear red (hemolysis), or cloudy. If the hemolysis does not occur, the reaction denotes the presence of syphilis.

Exceptions.—Serum from persons afflicted with tubercular and mixed types of leprosy, sleeping sickness and yaws may also react positively.

The application of the Noguchi system requires a certain amount of laboratory technique which can only be obtained by experience.

Complement-Fixation Tests in Other Diseases.—The use of complement-fixation tests may be applied to other diseases than syphilis. Much attention is being given to the subject in connection with various infections, such as gonorrhea, glanders, contagious abortion, typhoid fever, tuberculosis, etc. Complement fixation is also used in the standardization of immune serum.

(To be continued.)

GEO. M. BERINGER, Camden, N. J.
Chairman, Committee on Unofficial Standards.

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SECTION ON PRACTICAL PHARMACY AND DISPENSING, AMERICAN PHARMACEUTICAL ASSOCIATION

GENERAL FORMULAS IN U. S. P. IX.*

BY OTTO RAUBENHEIMER, PHAR.D.

Among the 24 General Principles to be Followed in the Ninth Revision in the Abstracts of the Proceedings of the Ninth Decennial Convention, 1910, published in U. S. P. IX, I find on p. xxxii the following:

7. *General Formulæ.*—It is recommended that general formulæ be introduced, as far as the particular nature of the several drugs will permit, for fluidextracts, tinctures and such other preparations as are made by identical processes, and that the general formula to be followed in each case be merely indicated by reference.

In the Preface to U. S. P. IX, I find under the new features the following on p. xxxvii:

General Formulas.—This term is used to define a plan to save space and to avoid repetition by printing a typical formula for galenical preparations. It will be seen that there are four type processes for fluidextracts designated by the letters A, B, C and D; two type processes are provided for tinctures, P and M, and also a type process for medicated waters. The Convention recommended the introduction of this plan (as pointed out above).

The object of this paper is to explain these *General Formulas* or *Type Processes* for the benefit of pharmacists and students as well. Why were they introduced? The answer is: " To save space and to avoid the useless repetition, for which our Pharmacopœia has been criticized so often."

AQUÆ AROMATICÆ.

Aromatic Waters.

The General Process is placed at the end of the chapter, on page 60, and therefore not in strict alphabetical order, and is as follows:

Volatile Oil	2 mils
Purified Talc	15 Gm.
Distilled Water, recently boiled	1000 mils

Triturate the volatile oil with the purified talc, add the recently boiled distilled water gradually with continued trituration, filter, and pass the filtrate through the filter repeatedly until the Aromatic Water is perfectly clear.

The U. S. P. VIII contains a chapter, but no General Process for Aquæ or Medicated Waters, which term has been properly replaced by Aromatic Waters. The General Process in U. S. P. IX is the same as the process for most of the Aromatic Waters in U. S. P. VIII with one single, but important, difference, namely, that now the distilled water is ordered to be *recently boiled.* To many this may seem unnecessary, inasmuch as distilled water has already been boiled. We should, however, remember that distilled water upon keeping will not remain germ-free, especially when kept in a five-gallon bottle of which the cork is missing, thus permitting not only dust and germs to enter but also insect life. " Distilled Water, recently boiled " has been adopted by the Revision Committee as a safeguard and is quite appropriate in this age of sanitation.

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* Read before section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City meeting, 1916.

The following 5 waters are made by this General Process: Anise, Cinnamon, Fennel, Peppermint and Spearmint.

The alternative methods are the same as in U. S. P. VIII, namely, the use of pulped filter paper, direct solution of oil in recently boiled distilled water and distillation of the drug or volatile oil with water. In addition the U. S. P. IX also sanctions the use of Purified Silicious Earth, or Purified Kieselguhr or Purified Infusorial Earth, which is official under the title of Terra Silicea Purificata. Quite an innovation is the statement at the end of the chapter in U. S. P. IX, namely: "Aromatic Waters should not be permitted to freeze." The writer is somewhat responsible for this, owing to his experience of the freezing of a ten-liter bottle of French Rose Water, which upon thawing had completely lost its fragrant odor. After all, experience is the best teacher, and this incident proved that freezing destroys the aromatic properties.

Just one word of caution before leaving this subject, and that is, Aromatic Waters from volatile oils should never be made in too large quantities. They do not improve by age. Many pharmacists no doubt have noticed that in Cinnamon Water, after a time, there is formed a flocculent precipitate and that the aromatic odor decreases. What happens? The cinnamic aldehyde of the oil of cinnamon is oxidized or hydrolyzed to cinnamic acid, which is odorless.

FLUIDEXTRACTA.

Fluidextracts.

Here a valuable saving of space is achieved, as can be seen from the following figures:

U. S. P. VIII contains 85 Fluidextracts described on 55 pages.

U. S. P. IX contains 49 Fluidextracts described on 21 pages.

After a definition of Fluidextracts an outline of the 4 Type Processes is given, followed by a description in detail. These processes are based upon the menstrua used for the extraction of the drugs.

Type Process A for menstrua of alcohol or alcohol and water: The usual process of percolation is followed. 1000 Gms. of powdered drug is moistened with sufficient menstruum and is macerated in a tightly covered container for six hours, and is then packed in a cylindrical percolator. Sufficient menstruum is added to have a stratum above the drug, and a forty-eight-hour maceration follows. Percolation is then allowed to proceed, at the rate of 10 drops per minute, until 850 mils are obtained, which is reserved. Add sufficient menstruum in percolator until the drug is completely exhausted, regulating the flow to 20 drops per minute. The alcohol is regained from this second percolate, and the residue is concentrated at a temperature not exceeding 60° C. to a soft extract, which is dissolved in the reserved portion. Finally sufficient menstruum is added to make 1000 mils, or the volume determined by calculation from the assay.

The primary moistening and maceration for six hours is necessary so the menstruum will penetrate and soften the drug and at the same time swell same. The secondary macero-percolation is intended to extract the drug. The concentration of the second percolate to a soft extract is done at the temperature not exceeding 60° C. (against 50° C. in U. S. P. VIII) in order not to injure the active principles.

Fluidextracts prepared by Type Process A: Belladonna Root, Buchu, Cannabis, Cimicifuga, Digitalis, Eriodictyon, Eucalyptus, Gelsemium, Gentian. Grindelia, Guarana, Hyoscyamus, Nux Vomica, Pilocarpus, Podophyllum, Rhubarb, Sabal, Sarsaparilla, Senna, Spigelia, Staphisagria, Stillingia, Sumbul, Veratrum Viride, Viburnum Prunifolium, Xanthoxylum and Ginger (27).

Type Process B for menstrua containing glycerin or an acid: In this class two menstrua are used. Menstruum I contains the glycerin or acid and Menstruum II is composed of alcohol and water. No. I is first employed, so as to thoroughly extract the drug, and is followed by No. II to complete the exhaustion. The *modus operandi* itself is the same as in Type Process A.

The addition of glycerin to the menstruum serves 3 purposes: (1) Softening and penetrating; (2) solvent for tannin principles; (3) retarding precipitation.

The addition of acid converts the alkaloids in the drug into soluble salts, as f. i. acetate in Lobelia or hydrochloride in Ergot, Ipecac, and Cinchona. Glycerin is also used in the latter drug, so as to extract the cincho-tannic acid.

Fluidextracts prepared by Type Process B: Aspidosperma, Cinchona, Ergot, Pomegranate, Hydrastis, Ipecac, Lobelia, Rose, Compound Sarsaparilla, Taraxacum and Uva Ursi (11).

Menstruum containing:

Acetic Acid: Lobelia.

Hydrochloric Acid: Ergot and Ipecac.

Hydrochloric Acid and Glycerin: Cinchona.

Glycerin: Aspidosperma, Pomegranate, Hydrastis, Rose, Comp. Sarsaparilla, Taraxacum and Uva Ursi.

Type Process C, better known as Fractional or Divided Percolation: It is especially recommended for drugs containing volatile ingredients, or constituents which are injured by heat. Inasmuch as no heat whatever is used, the resulting products can be termed "Fluidextracts by Cold Process."

The *modus operandi* is as follows:

Divide 1000 Gm. of the ground drug into 3 portions of 500 Gm., 300 Gm. and 200 Gm., which for convenience we will name I, II and III. Moisten, macerate and percolate Portion I in the usual manner. Reserve the first 200 mils and continue percolation, reserving percolates *A, B, C, D* and *E,* of 300 mils each.

Use these additional percolates to moisten, macerate and percolate Portion II. Reserve the first 300 mils and continue percolation, reserving percolates *A, B, C* and *D,* of 200 mils each.

Use these additional percolates to moisten, macerate and percolate Portion III, and, if necessary, some of the original menstruum to percolate and reserve 500 mils.

Mix these reserved percolates of 200, 300 and 500 mils, thus producing 1000 mils of finished fluidextract.

The following table thoroughly explains this process:

		I		II		III		Total
Drug		500 Gm.	plus	300 Gm.	plus	200 Gm.	equals	1000 Gm.
Reserved Percolate		200 mils	plus	300 mils	plus	500 mils	equals	1000 mils
Additional Percolates	*A*	300 mils		200 mils				
	B	300 mils		200 mils				
	C	300 mils		200 mils				
	D	300 mils		200 mils				
	E	300 mils						
Total		1500 mils		800 mils				

Type Process C can also be used as an alternative process in the formulas in which Type Process A is directed. Fractional Percolation is *the* process for excellence by which the retail pharmacist can himself prepare his own fluidextracts, with but very little trouble and without very much loss of alcohol. In fact, the alcohol may be recovered by distillation of the marc of the three Portions I, II, and III.

Fluidextracts prepared by Type Process C: Aconite, Aromatic and Bitter Orange Peel (3).

Type Process D for aqueous menstrua: This process is used when the drug is readily extracted by infusion and percolation with boiling water. One thousand grammes of the ground drug are mixed with 5000 mils of boiling water and allowed to macerate in a covered container for two hours in a warm place. Then transfer to a tinned or enameled metallic percolator and continue percolation with boiling water until the drug is exhausted. Tin is recommended because it is not affected by the organic acids in the drugs. The percolate is evaporated on a water bath or strain bath to the specified volume and the directed amount of alcohol is added to act as a preservative, as the aqueous fluidextract would get sour.

Fluidextracts prepared by Type Process D: Cascara Sagrada, Frangula and Triticum (3).

Several drugs require special manipulation to obtain satisfactory fluidextracts, and for these appropriate formulas are printed in full in the text of the U. S. P. IX.

Fluidextracts prepared by Special Processes: Aromatic Cascara Sagrada, Colchicum Seed, Glycyrrhiza, Squill and Senega (5).

TINCTURÆ.

Tinctures.

The General Chapter in U. S. P. IX gives definitions of tinctures, potent tinctures and assayed tinctures, directions for keeping and a full description of the 2 Type Processes.

Type Process P—Percolation: The drug in proper fineness, as designated by the U. S. P., is moistened with a sufficient quantity of the prescribed menstruum to render it evenly and distinctly damp and is then transferred to a percolator, in which it is allowed to stand, well covered, for six hours. This moistening and maceration has the purpose to soften the drug, and to permit it to swell. For this reason the powder in the percolator is not packed until after the lapse of six hours. A sufficient quantity of menstruum is then added to completely saturate the drug and leave a stratum above it. When the liquid begins to drop from the percolator, close the lower orifice and allow to macerate for twenty-four hours, well covered. During this maceration the menstruum completely penetrates the drug and extracts the soluble principles. It is for this reason that the first percolate, after the twenty-four-hour maceration, is practically so saturated that it resembles a fluidextract. It is an erroneous idea which, I am sorry to state, has found hold on some students and pharmacists, that the first percolate should be poured back into the percolator! Such teaching is a disgrace to pharmacy!

The last step in this process is the addition of menstruum through the percolator to make 1000 mils of finished tincture.

The statement has frequently been made, that some students never learn to percolate properly. My answer to this is that such students should not be allowed to graduate, as they certainly are not fit to be pharmacists.

The General Formula of Type Process P also provides a *Modification for Assayed Tinctures.* In this case only 950 mils, instead of 1000 mils, are percolated. A sample of this is assayed, and from the alkaloidal content thus determined, the amount of alkaloids in the remainder of the liquid is determined. Then sufficient menstruum is added to make the finished tincture conform to the required alkaloidal standard.

Most of the tinctures in the U. S. P., 28 out of 54, are prepared by percolation.

Justly so, as this process, although originated in France, has been perfected by American pharmacists, perfected to such a high degree that percolation has been adopted in the Brussels Agreement, or International Protocol (P. I.), for the preparation of the potent tinctures.

Tinctures prepared by Type Process P: Aconite, Bitter Orange Peel, Belladonna Leaves, Calumba, Cannabis, Capsicum, Cardamom, Cinchona, Compound Cinchona, Cinnamon, Colchicum Seed, Digitalis, Gelsemium, Compound Gentian, Hydrastis, Hyoscyamus, Lobelia, Nux Vomica, Physostigma, Pyrethrum, Quassia, Rhubarb, Aromatic Rhubarb, Stramonium, Valerian, Ammoniated Valerian, Veratrum Viride and Ginger (28).

Type Process M—Maceration: This old process is resorted to, when from its physical character the drug is not suitable for percolation. Such is the case if the drug is a resin (Benzoin) or gum-resin (Asafetida) or balsam (Tolu). Maceration is also used for fresh drugs (Lemon Peel) or when the quantity of drugs is very small (Camphorated Opium).

Type Process M of U. S. P. IX is very simple. Maceration is carried on in a stoppered container, to avoid loss by evaporation, in a moderately warm place, because this facilitates extraction, for about three days with about three-fourths of the menstruum. It is absolutely necessary that agitation and maceration go hand in hand, otherwise the menstruum in contact with the drug becomes saturated, while the liquid above it has no chance to exert any solvent action. After the three days, or when the macerated drug is practically extracted, the mixture is transferred to a filter, and when the liquid has completely drained off, then the residue on filter is gradually washed with enough menstruum to produce the finished tincture.

The " old-timers " in pharmacy will well remember that during their apprenticeship it was their daily duty to agitate the galenicals prepared by maceration. Let the younger generation of pharmacists also remember this!

Tinctures prepared by Type Process M: Aloes, Asafetida, Sweet Orange Peel, Benzoin, Compound Benzoin, Compound Cardamom, Compound Gambir, Guaiac, Ammoniated Guaiac, Compound Lavender, Lemon Peel, Myrrh, Camphorated Opium and Tolu (14).

In a few instances the drugs require special manipulations for the preparation of a satisfactory tincture, and for these the formulas in full are given in the text of U. S. P. IX.

Tinctures prepared by Special Processes: Arnica, Cantharides, Kino, Lactucarium, Musk, Opium, Deodorized Opium, Sanguinaria, Squill and Strophanthus (10).

Two tinctures in U. S. P. IX (as in U. S. P. VIII) are simply alcoholic solutions of chemical substances.

Tinctures prepared by Solution: Ferric Chloride and Iodine (2).

CONCLUSION.

In conclusion, I believe that the General Formulas for Aromatic Waters, Fluidextracts and Tinctures adopted in the U. S. P. IX are to be highly recommended. They have the following advantages:

(1) They save valuable space in the U. S. P.
(2) They avoid useless repetition.
(3) They can be easily remembered by students.
(4) They can be logically explained by teachers.
(5) They can be readily practised by pharmacists.

Let us have more General Formulas!

Department of Pharmacy, College of Jersey City.

THE NEW PHARMACOPŒIA AND THE NEWER PHARMACY.*

BY H. V. ARNY.

The long expected ninth edition of the United States Pharmacopœia is now before us and what are we going to do with it? This is not the time, the place nor the person to go into an elaborate exposition of its features, but a few words upon the responsibilities of the pharmacist who considers the Pharmacopœia as his guide, may be entirely pertinent.

There is no better way to study the changes that have come over Pharmacy during the past half century than to compare the Pharmacopœias of 1870 and of 1916. The first mentioned work was a book of recipes with some macroscopical descriptions of drugs and chemicals thrown in. Even the method of manufacture of such chemicals as benzoic, gallic and tannic acids; aconitine and other alkaloids, potassium bromide and other salts was given in detail. On the other hand, the Pharmacopœia that has just come to us is long on descriptions and short on recipes. Even such old timers as yellow mercuric oxide and bismuth and ammonium citrate are presented without methods of manufacture, while descriptions and tests for identity and assays have been elaborated until it requires a real chemist in a real laboratory to conduct them.

We have grown accustomed to volumetric analyses, but how about the gravimetric, the electrolytic and polariscopic assays that are now provided for those chemicals and preparations which do not adapt themselves to volumetric methods?

The prediction of a prominent manufacturer that the National Food and Drug Law would drive the preparation of pharmaceuticals, galenical as well as chemical, from the drug store to the large factory, is about to be realized and unless the retailers bestir themselves they will become merely the vendors of other men's packaged products with all of the evils—price cutting and otherwise—that the handling of package goods entails.

So much for the new Pharmacopœia, but what of the newer Pharmacy? Is the retailer to be merely a drop-a-nickel-in-the-slot vending machine, or is he to be a real pharmacist? This is being answered each day by the individuals within the ranks of retail pharmacy *by their own acts.*

Thus within the past few months the question has been asked twice by the writer in ordinary mercantile transactions. An order for " one ounce of cold cream " without specification was filled by sending an ounce jar of a largely advertised cream; so largely advertised that it is frequently found among the " great slaughter " advertisements of the department stores. Another order for " four ounces of aromatized castor oil, like the product of the new N. F." was supplied by sending an original package of the aromatic castor oil of one of our well-known pharmaceutical houses.

This druggist's answer was therefore that he would rather be a vendor than a producer. To such an one the ninth edition of the United States Pharmacopœia has even less than no appeal; for him it has no interest.

And finally a few words to those to whom the new Pharmacopœia is a vital thing; to those who not only make their own galenicals, but who also have sufficient ability and the training to conduct the chemical tests that our new standard prescribes; the men who have kept abreast with pharmaceutical progress; the class the writer had in mind when two years since he suggested the American Institute of Prescriptionists, put to sleep so successfully in San Francisco last year by those skilled anesthetists, Dr. Hynson and his four able co-workers.

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City meeting, 1916.

To my mind the new Pharmacopœia furnishes the best possible reason for the existence of the highly trained pharmacist and each of these will make a great mistake if he modestly declines to use the Pharmacopœia as a means of impressing the medical and lay public that he possesses, not merely the knowledge as to what is in the Pharmacopœia, but also the ability to actually carry out the operations which that standard prescribes for the manufacture of official preparations and for the determination of the purity of official drugs and chemicals.

In short, the real pharmacist of the present decade must be more than a peruser of the U. S. P. He must be a user of it as well.

TERMS USED IN ELECTRICITY.

The volt is the unit of electrical pressure; the ampere, the unit of current strength; the ohm, the unit of resistance; the watt, the unit of electric power; and the least of all known, farad, the unit of electrical capacity.

Current strength is determined by dividing the pressure by the strength, thus the number of amperes of current strength is equal to the number of volts divided by the number of ohms. The watt indicates the amount of electric energy being used when an ampere of current is flowing under a pressure of one volt. However, the term kilowatt, or one thousand watts, is more generally used. The unit of electrical capacity, the farad, will contain one ampere of current at one volt pressure for one second of time. The farad is divided into a million equal parts, each part termed the microfarad, and this is the term most used in stating electrical capacity.

The term "volt" is derived from the name of Alessandro Volta, an Italian, born in 1745. He was one of the first men to try to harness electricity, yet he died without the knowledge that a "volt" was the pressure necessary to force an ampere of current through a conductor having one ohm resistance.

Likewise, Andre Marie Ampere, father of the science of electro-dynamics, never knew that an "ampere" was equal to the number of volts of pressure divided by the ohms of resistance. He was born in France in 1755.

George Simon Ohm was the author of what is known as Ohm's Law, now universally recognized as the unit for measuring the resistance of electricity, but it was not until years later that the unit of resistance was named after the German physicist. The number of ohms is computed by dividing the number of volts by the number of amperes.

With either of the two units known, the third can easily be found. Likewise, electrical energy is as easily figured. The "watt" indicates the amount of electric energy being used when one ampere of current is flowing under the pressure of one volt. The watt is derived from the name of James Watt, the man who really invented the modern steam engine. Without the principle of the steam engine, however, electricity as a motive power could not do the powerful tasks it daily accomplishes.

Michael Faraday made the great discovery of magnetic electric currents, the principle on which all modern dynamos and transformers are constructed. In recognition of his great work scientists have named the unit of electrical capacity the "farad." This unit of capacity will contain one ampere of current at one volt pressure for one second of time.—*London Tid Bits.*

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in The Journal, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

Otto Raubenheimer, Brooklyn, N. Y.

Contributed by the Chairman:

No. 286.

PULVIS INSPERSORIUS ANTISEPTICUS.

Antiseptic Dusting Powder.

Lux.

Boric Acid	4 Gm.
Lycopodium,	
Zinc Oxide,	
Starch,	
Talc, of each	24 Gm.

No. 287.

PULVIS ZINCI ET ACIDI BORICI.

Zinc and Boric Acid Powder.

B. P. Cx.

Zinc Oxide,
Boric Acid, equal parts.

No. 288.

PULVIS ZINCI ET AMYLI.

Zinc and Starch Powder.
B. P. Cx.

Pulvis Exsiccans. F.M.G.

Zinc Oxide,
Starch, equal parts.

No. 289.

PULVIS ZINCI ET AMYLI COMPOSITUS.

Compound Zinc and Starch Powder.
B. P. Cx.

Zinc Oxide,	
Starch,	
Boric Acid,	
Talc, of each	25 Gm.
Oil of Geranium	0.2 mil

No. 290.

PULVIS INSPERSORIUS CUM ZINCO OXYDATO.

Zinc Oxide Dusting Powder.

F. M. G.

Zinc Oxide	10 Gm.
Rice Starch	20 Gm.
Talc	20 Gm.

No. 291.

PULVIS SALICYLICUS CUM ZINCO.

Salicylated Zinc Powder.

F. M. G.

Salicylic Acid	1 Gm.
Zinc Oxide	9 Gm.
Wheat Starch	20 Gm.
Talc	20 Gm.

No. 292.

PULVIS ADSPERSORIUS SALICYLATUS.

Salicylated Dusting Powder.

Ph. Aust. VIII.

Salicylic Acid	2 Gm.
Orris	10 Gm.
Zinc Oxide	20 Gm.
Wheat Starch	28 Gm.
Talc	40 Gm.

No. 293.

PULVIS ZINCI ET ACIDI SALICYLICI.

Zinc and Salicylic Acid Powder.

B. P. Cx.

Salicylic Acid	5 Gm.
Zinc Oxide	20 Gm.
Starch	75 Gm.

No. 294.

PULVIS ALUMINIS COMPOSITUS.

Compound Alum Powder.

Squibb's Surgical Powder.

Phenol	1 Gm.
Camphor	3 Gm.
Exsiccated Alum	96 Gm.

Triturate to a fine powder. Keep in well-closed vessels.

This preparation was introduced by Dr. E. R. Squibb in 1868. It is used as an antiseptic and absorbent dusting powder for fresh and discharging wounds, causing rapid healing. It is also a good styptic. Besides this, the powder dissolved in water can be used as an astringent wash and gargle.

FOOT POWDERS.

PULVIS PRO PEDIBUS.

These preparations are used extensively during the warm weather. Besides sprinkling in the shoes and socks or stockings it is also advisable to rub the powder on the feet, night and morning. Almost immediate relief will be obtained by this "common sense" application. Talc is the chief ingredient in these foot powders and the *Pulvis Talci Compositus* N.F. is an excellent type preparation. The Chairman has improved same by the addition of powdered asbestos, which acts as an absorbent and an insulator.

No. 295.

IMPROVED FOOT POWDER.

(Raubenheimer.)

Compound Powder of Talc N.F.,
Powdered Asbestos, equal parts.

No. 296.

PEROXIDE FOOT POWDER.

Zinc Peroxide	10 Gm.
Sodium Perborate	15 Gm.
Talc	75 Gm.

No. 297.

PULVIS SALICYLICUS CUM TALCO.

Salicylstreupulver.

D.A.B.V.

Salicylic Acid	3 Gm.
Wheat Starch	10 Gm.
Talc	87 Gm.

See also Formula No. 124, Astringent and Antiseptic Foot Powder, J. A. Ph. A., March, 1916, p. 310.

FACE POWDERS.

Face powders containing talc as the principal ingredient possess the great disadvantage of producing a "shine or gloss." The following formulas show the composition.

No. 298.

VELOUR FACE POWDER.

Corn Starch	200 Gm.
Wheat Starch	50 Gm.
Talc	50 Gm.
Magnesium Carbonate	20 Gm.

Perfume, a sufficient quantity.

No. 299.

POUDRE LA MEXICANA.

Precipitated Chalk	100 Gm.
Wheat Starch	100 Gm.
Talc	30 Gm.

Perfume, a sufficient quantity.

No. 300.

PERBORATE FACE POWDER.

Talc	94 Gm.
Sodium Perborate	5 Gm.
Extract of Violet	1 Gm.

To whiten the skin the quantity of sodium perborate can be increased.

No. 301.

NAIL ENAMEL.

I.

Tin Oxide	100 Gm.
Talc	40 Gm.
Carmine	1 Gm.

Perfume, a sufficient quantity.

II.

Tin Oxide	100 Gm.
Talc	30 Gm.
Powdered Orris	10 Gm.
Rice Starch	10 Gm.
Carmine	0.8 to 1 Gm.

No. 302.

CREME IRIS.

Borax	0.5 Gm.
Talc	2.0 Gm.
Zinc Oxide	10.0 Gm.
Glycerite of Starch	87.5 Gm.

Oil of Tuberose, to perfume.

No. 303.

GREASELESS CREAM.

Stearic Acid	10 Gm.
Oil of Theobroma	1 Gm.
Sodium Carbonate, crystals	4 Gm.
Borax	4 Gm.
Talc	20 Gm.
Glycerin	8 mils
Alcohol	6 mils
Water	80 mils
Oil of Rose	5 drops
Oil of Bitter Almond	1 drop

Melt the stearic acid and oil of theobroma on a water-bath, and gradually add with constant stirring the solution of sodium carbonate, borax and glycerin in hot water, until effervescence ceases and a soap is formed. Then incorporate the talc, and when cool mix in the alcohol and perfume.

Sodium carbonate, crystals, may be replaced by one-half the quantity of the monohydrated salt.

No. 304.

TOOTH PASTE.

Precipitated Chalk	80 Gm.
Talc	20 Gm.
Glycerin	17 Gm.
Powdered Soap	16 Gm.
Powdered Sugar	8 Gm.
Color,	
Perfume, of each, a sufficient quantity,	

No. 305.

EAU DE LYS.

Zinc Oxide	10 Gm.
Talc	10 Gm.
Glycerin	20 Gm.
Rose Water	2000 mils

No. 306.

LOHSE'S LILIENMILCH.

Zinc Oxide	2 Gm.
Talc	2 Gm.
Glycerin	4 mils
Rose Water	200 mils

LIQUID FACE POWDERS.

No. 307.

BLANC DE PERLE.

Talc	200 Gm.
Bismuth Oxychloride	50 Gm.
Rose Water	1200 mils

No. 308.

BLANC DE FARD.

Talc	200 Gm.
Bismuth Oxychloride	80 Gm.
Rose Water	1200 mils

No. 309.

POLISHING POWDER.

Infusorial Earth	30 Gm.
Iron Subcarbonate	30 Gm.
Precipitated Chalk	15 Gm.
Citric Acid	15 Gm.
Alum	15 Gm.
Talc	8 Gm.

Make into a fine powder.

This powder also removes iron rust. Iron subcarbonate or "crocus martis" or "caput mortuum" is the residue of the roasting of iron pyrites in the manufacture of sulphuric acid.

STAINS.

The U.S.P. IX, in that excellent chapter, *Diagnostical Reagents and Clinical Tests,* contains a great many formulas for stains and accessories for use in connection with the study of Microörganisms. The following are missing, although frequently used.

Contributed by Rudolph Lundgren,
Youngstown, Ohio:

No. 310.

ANILINE GENTIAN VIOLET.

Sterling's Solution of Gentian Violet.

Gentian Violet	5 Gm.
Aniline	2 mils
Alcohol	20 mils
Distilled Water, a sufficient quantity,	
To make	100 mils

Dissolve the gentian violet in the alcohol, add the aniline and then the distilled water, and filter through a wetted filter.

For use as a stain for bacteria in Gram's method, encapsulated organisms in Welch's method, and flagella in Loeffler's method.

The chapter on Stains in U.S.P. IX contains another formula which is to replace the above, under the title of *Aniline Water—Methyl Violet 6B Solution.*

Contributed by the Chairman:

No. 311.

STABILIZED GENTIAN VIOLET.

Of the many stains which serve the bacteriologist in the capacity of a differential stain, there is not any single stain which has so wide an application as the one known as Gram's. The only disadvantage in the use of the stain is that the gentian violet used deteriorates, and on that account should be freshly prepared when wanted.

In a series of experiments, made by W. D. Stovall, M.D., and M. Starr Nichols, B.S., which are published in *J. A. M. A.*, May 20, 1916, p. 1620, they recommend the following stable stain.

Aniline	28 mils
Gentian Violet, Gruebler	8 Gm.
Alcohol, 95 percent	100 mils
Normal Hydrochloric Acid	5 mils
Distilled Water, a sufficient quantity,	
To make	1000 mils

The gentian violet is dissolved in the alcohol. The hydrochloric acid is added to the aniline, and the whole is dissolved in enough water to make 900 mils. The aqueous solution is filtered and added to the alcoholic solution of the stain. The whole is filtered and is then ready for use.

This stain keeps for about three months under ordinary laboratory conditions.

Contributed by C. G. Spalding,
New Haven, Conn.:

No. 312.

GABBETT'S STAIN.

Methylene Blue	2 Gm.
Sulphuric Acid, 25 percent	100 mils

Used as a decolorizer and a counterstain combined in staining tubercle bacilli and other acid-fast bacteria. After the fixed smear is steamed with carbol-fuchsin for five minutes the slide is immersed for one minute in this solution, rinsed in water and dried. This method, while rapid and very convenient, is not so reliable as the original Ziehl-Neelson method, where the carbol-fuchsin is decolorized by a weak mineral acid and then counterstained with aqueous methylene blue.

No. 313.

CARBOL GENTIAN VIOLET.

Sat. Alcoholic Sol. Gentian Violet	10 mils
Sol. Phenol, 2.5 percent	90 mils

The chapter on Stains in U.S.P. IX contains another formula, which is to replace the above, under the title of *Solution of Carbol Methyl Violet.*

This is one of the several formulas suggested to replace the Aniline Gentian Violet Solution used in the Gram method of staining bacteria, which deteriorates rapidly. The carbolic solution keeps well for three months, even in warm weather.

No. 314.

NEISSER'S STAIN.

A.

Methylene Blue	0.1 Gm.
Alcohol	2.0 mils
Glacial Acetic Acid	5.0 mils
Water	95.0 mils

B.

Bismarck Brown	2 Gm.
Water	100 mils

This is a differential stain for diphtheria bacilli. The fixed smear is stained for five seconds with Solution A, washed in water and counterstained with solution B for five seconds. By this method the polar bodies are stained blue, while the bacillary bodies are stained brown.

Contributed by Dr. J. Weinstein, N. Y. City:

No. 314a.

ROUX'S STAIN.

Roux's method is also employed for the above purpose. Two solutions are necessary:

A.

Dahlia Violet	1 Gm.
Alcohol, 90 percent	10 mils
Distilled Water, a sufficient quantity,	
To make	100 mils

B.

Methyl Green	1 Gm.
Alcohol, 90 percent	10 mils
Distilled Water, a sufficient quantity,	
To make	100 mils

Before use, one part of solution A is mixed with three parts of solution B. The preparation is stained with the mixture for two or three minutes.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CINCINNATI.

The Cincinnati Branch, A. Ph. A., will resume its monthly meetings early in October for the session 1916–17.

The outgoing officers and committees feel gratified for the successful achievements during the 1915–16 gatherings, such subjects being presented as:

The Progress and Results of the Administration of the Harrison Anti-Narcotic Act, by Prof. J. H. Beal,

Aspirin and other Synthetics,—their uses and abuses, by Prof. H. W. Jones,

A Lecture on "Alcohol,"—illustrated, by Dr. S. P. Kramer,

Modern Trend of Biochemistry,—illustrated, by Prof. Edw. B. Reemelin, Biological Aspect of the Behavior of Emulsions,—illustrated, by Prof. Martin Fischer,

Analysis of Stomach Contents, by Leon G. Tedeshe,

and many other subjects, all of which furnished highly interesting and instructive discussions, participated in by the members, who appreciate the fact that, through the efforts of the committees, such subjects and discussions furnish food for thought, inspiration and effort for further individual endeavor, in fact, giving the members what should really be the object of every Local Branch—a Post-Graduate Course in Pharmacy.

The incoming officers and committee men are enthusiastic and promise to make the session of 1916–17 even more attractive than any of the preceding ones, energetic preparations already being on foot for presenting live and timely topics.

Officers for 1916–17: President, Dr. J. C. Otis; first vice-president, Louis Werner; second vice-president, Theo. D. Wetterstroem; treasurer, Julius Greyer; secretary, Chas. A. Apmeyer; executive committee, third-year, C. T. P. Fennel.

The Cincinnati Branch enjoys a steady growth in membership, and the treasurer reports a healthy balance in the treasury.

CHAS. A. APMEYER, *Secretary.*

To the Branches of the American Pharmaceutical Association.

The JOURNAL of the A. Ph. A. desires to print the reports of the Branch Meetings as promptly as possible; therefore, if the proceedings are sent immediately after the meeting it will facilitate matters.

Papers and addresses of importance should be submitted for publication. It is realized that it is the desire frequently to have these published by other journals. Usually this is satisfactory but in order to conform with the requirements they should first be submitted. If there is any way that the JOURNAL can be of assistance, the Editor will be glad to do everything in his power toward that end.

The Association, and the JOURNAL as the official organ, hopes for successful and profitable meetings during the coming year. A carefully outlined preparatory program for the monthly meetings will add materially toward making every meeting interesting.

THE JOURNAL OF THE A. PH. A.
253 Bourse Building, Philadelphia.

COUNCIL BUSINESS

A. PH. A. COUNCIL LETTER NO. 27.

PHILADELPHIA, PA., July 11, 1916.

To the Members of the Council:

In the previous Council Letter, Motion No. 54, granting the J. B. Lippincott Company permission to use the text of the N. F. IV, under certain conditions, was presented, being favorably recommended to the Council by the Committee on Publication.

The offer of the J. B. Lippincott Company was, in brief, as follows: To pay one thousand dollars for and in consideration of permission to use the N. F. IV text in whole or in part in "The Practice of Pharmacy," printing upon the copyright page that permission had been granted by the American Pharmaceutical Association, in the usual form, and that at least ninety days shall elapse after the issue of the N. F. IV before "The Practice of Pharmacy" is printed.

The following communication upon the subject of Motion No. 54 has been received:

CLEVELAND, O., July 8, 1916.

To the Secretary of the Council of the A. Ph. A.:

In reference to my vote on Motion 54 I beg to submit the following:

1. The National Formulary, as a book, belongs without doubt to the A. Ph. A.; but the Association can lay no claim, nor establish a clear title, to any individual formula. Where do these formulas come from? Some are reprints from former pharmacopœias, some are taken from foreign pharmacopœias, some are copied from medical and pharmaceutical text-books and journals. But all of them are old; they have appeared in print, or been in use, many years ago, the majority probably long before there was any thought of a Formulary. None of them have been originated by the Association, or by the Committee on Formulary, unless it be the imitations of proprietary articles, and these should be thrown out. The very fact that a formula appears in the Formulary is proof that it has been extensively used for a considerable time in some part of the country, as the preface of the second edition of the Formulary distinctly states. Let us take an instance. The formula for Sun Cholera Mixture was originally published by the *N. Y. Daily Sun,* that gave it its name, long before there was an A. Ph. A.; it is common property. How can we say that its adoption in the Formulary gives us the exclusive right to its reprint? A man might just as well compile a book of quotations from Shakespeare, copyright the book and then claim exclusive right to the quotations. The idea is too absurd to admit of any argument. Nor does the fact that some of the formulas have been tested, revised and slightly altered by our Committee constitute a right of ownership. During the last year I had some correspondence on this subject with the Commissioner of Patents at Washington. While he naturally declined to consider a hypothetical case, leaving the decision to the courts when an actual trial should turn up, he stated in his letter:

"It is perfectly legal to publish and copyright a book consisting of quotations, formulas or parts from other books; but such copyright does not confer to the publisher any right of ownership of the quotations as such, even if he changes them to suit his case; in fact such alteration might constitute a cause of action against him by the original author, provided the latter has himself secured a copyright."

But aside from the legal aspect, common sense will tell us that we cannot acquire a clear title to the mental productions of others by simply compiling and printing them. The National Formulary, as a book, is the property of the A. Ph. A.; but each individual formula has been, is now, and ever will be, the property of the whole pharmaceutical profession. Any man has as much right to print these formulas as the A. Ph. A., provided he does not call his book "The National Formulary."

2. The National Formulary is a part of the Proceedings of the A. Ph. A. and should be printed as part of the Report on Progress of Pharmacy, in fact, I consider it the most important part of this report. In our Year Book we find reports and formulas on all possible subjects and methods practised in Europe, Africa and Asia. But the thing that interests every pharmacist most, viz.: the development of

pharmacy at home, as evinced in new compounds, galenicals and formulas, is left out. Even the members of the A. Ph. A., each of whom is part owner of the Formulary, must pay for this most desirable information. I can trace three failures in my efforts to obtain new members to this fact, and a former member of the A. Ph. A. in Cleveland who resigned a year ago, when urged by me to come back, replied: "What kind of an Association is yours? You first promise us books and literature on all new things in return for our dues and then charge us extra for the only information that is of any value for us. You are fakes. I can buy the Formulary without paying you $5.00 annually." In my mind there is no doubt that every member in good standing has a just right to demand, free of charge, a copy of each edition of the Formulary, either as part of the Year Book or as a separate volume. This principle was acknowledged by the leading men of the Association when the Formulary was taken over (see vol. of Proceed. No. 34, p. 165, etc., remarks by Remington and others). This same principle was recognized later by the Association in printing the New York and Brooklyn Formulary, the forerunner of the National Formulary, as a part of the proceedings. If the Formulary is not a part of the proceedings, what is it? The Association by its own actions has always considered it so. The expenses of the Committee on Formulary have been paid from the funds of the Association whenever a bill was presented, and, on the other hand, the accruing profits have been put into the treasury of the Association and used as regular funds. If the Formulary were not an integral part of the proceedings, but something outside or different from the other work of the Association, from where did the financial officers derive the authority to pay for such work and expenses out of the funds of the Association?

It has been the custom and principle of the Association from its beginning to allow the press and publishers to reprint any parts of the Proceedings whenever and wherever they chose. Even the authors of scientific and other papers are not asked permission for such reprints. In fact, it is held out as an inducement to young authors to contribute papers that their writings may be given wide publicity. How can we, in considering this general custom, deny certain publishers the privilege of reprinting the Formulary, while we grant it others? The claim that the Formulary may be used and reprinted by the pharmaceutical press, but must not be reprinted by publishers of text-books for the sake of instruction or education is not only wrong but actually vicious. Neither the Pharmacopœia nor the Formulary is intended nor fit to be used as text-books; to make their contents available for instruction, a rearrangement and proper classification of the subject matter becomes necessary. The schools of pharmacy are supposed to base their instructions on these two books, and any desire or effort to do so and thereby impart knowledge and understanding to our coming pharmaceutical generation should be encouraged and supported by the Association. Authors and publishers of text-books confer a benefit and blessing on the whole profession by giving the formulas as wide a publicity as possible, and a charge for doing so would be a tax on education.

3. By an act of Congress in 1906, commonly called the Pure Food and Drug Act, the Pharmacopœia and the National Formulary have become parts of our national laws. A violation of any of their formulas is a violation of a national law, and there are many cases on record that the courts decided according to this principle. Compilations of certain sets of laws are quite common. One author compiles a book on the laws of internal revenue, the other on real estate, a third on public health, and so forth. All these law books are copyrighted and used extensively in law schools. But no author ever claimed that by compiling such a book he acquired the right of property in the individual laws that he compiled, and that anybody who might wish to reprint them after the publication of his book, must pay him a royalty. He would be laughed out of court with such a contention.

The A. Ph. A. has not only consented to have the Formulary made part of the law, but has asked and worked for such incorporation. Even if a right to the formulas had existed before the passage of this law, such right would have ceased by the action of the Association. No right can be assumed without corresponding duty. If we claim the right of having these formulas considered laws, we thereby undergo the duty of letting every citizen read, quote, criticize, print and discuss these laws whenever and wherever he wishes.

I am well aware that some leading men in our Association differ from me on this point. Men in general are ready to believe what they hope and willing to consider correct and legal what seems to benefit them. We must learn to free our arguments from hopes and desires, in order to stay on the straight path of logic and right. I once opposed the whole pharmaceutical profession on another similar occasion, and was attacked and abused for years, until the Supreme Court justified my position. Some day the court will do so in this case.

4. The charge of a royalty for the use of the formulas of the National Formulary is unethical and diametrically opposed to the fundamental principles of our Association. Article 1 of our Constitution, which forms our code of ethics, seems to have been forgotten. I invite all who wish to levy this tax on pharmaceutical education to carefully read this article and particularly paragraphs 3, 6 and 7. There is but one argument in favor of this tax: "That we need the money." It is hardly necessary to point out how fundamentally wrong this argument is. Read the Proceedings of 1885 and following years and the remarks of men like Ebert, Dr. Rice, De Forrest, Hallberg, Colcord, and others, who then represented, and lived for ethical pharmacy; notice the emphasis with which all asserted that the National Formulary must not, and never should, be made a source of profit to the Association, that each member should receive a copy, and that non-members might buy it at strictly cost price. Have we sunk so low as to brush aside the ideals of these men and the whole noble, ethical past of our Association by the vile argument: "We need the money"? The adoption of Motion 54, according to my views, is

Contrary to the life and history of our Association,

Contrary to all ethical principles of pharmacy, by levying a tax on education,

Morally and legally indefensible.

For these reasons, I vote "No."

William C. Alpers.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 28.

Philadelphia, Pa., July 20, 1916.

To the Members of the Council:

Motion No. 54 (*Grant of Permission to use the N. F. IV text in "The Practice of Pharmacy," published by J. B. Lippincott Company*) has received a majority of affirmative votes, the vote being 33 for the motion and 1 against.

Motion No. 55 (*Election of Members; Applications Nos.* 293 *to* 314, *inclusive*) has received a majority of affirmative votes.

Motion No. 56 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 315. Aristides M. Aliberti, 2032 S. Bouvier St., Philadelphia, Pa., rec. by J. W. Sturmer and F. E. Stewart.

No. 316. Fred. W. Smith, Poplarville, Miss., rec. by J. C. McGee and Gus Kendall.

No. 317. John C. Gleim, 2181 E. 89th St., Cleveland, Ohio, rec. by W. C. Alpers and E. R. Selzer.

No. 318. Elmer Joseph Zickes, 4521 Clark Ave., S. W. Cleveland, Ohio, rec. by W. C. Alpers and E. R. Selzer.

No. 319. Henry George Duerfeldt, Main and Washington, Spokane, Wash., rec. by C. Osseward and C. W. Johnson.

No. 320. Thomas H. Bienz, Kalispell, Mont., rec. by Alex. F. Peterson and Charles E. Mollet.

No. 321. Ben E. Lapeyre, Jr., Gt. Falls, Mont., rec. by Charles E. Mollet and Alex. F. Peterson.

No. 322. Hugh Lee Boyd, Kosciusko, Miss., rec. by J. C. McGee and Gus Kendall.

No. 323. Knud J. Damtoft, 326 State St., Bridgeport, Conn., rec. by G. A. Jamison and J. A. Leverty.

No. 324. Walter Carl Palenschat, 2364' E. 69th St., Cleveland, Ohio, rec. by L. C. Hopp and W. T. Hankey.

No. 325. August Fred Pence, 8135 Superior Ave., Cleveland, Ohio, rec. by L. C. Hopp and W. T. Hankey.

No. 326. Harry Earl Mitchell, 425 E. 112th St., Cleveland, Ohio, rec. by L. C. Hopp and W. T. Hankey.

No. 327. S. Ross Campbell, Cynwyd, Pa., rec. by W. B. Day and J. W. England.

No. 328. Ralph Waldo Morgan, 219 N. Senate Ave., Indianapolis, Ind., rec. by Francis E. Bibbins and Francis A. Federer.

No. 329. John Wilfred Vestal, 402 E. Raymond St., Indianapolis, Ind., rec. by Francis E. Bibbins and W. B. Day.

No. 330. Juan Rosales Imson, No. 6 LaO. and No. 9-11 Mpl. Sts., Tayabas, Province of Tayabas, P. I., rec. by W. C. Alpers and E. R. Selzer.

No. 331. Forest D. Christian, N. E. Cor. Ohio Ave. and Poplar St., Sidney, Ohio, rec. by E. R. Selzer and W. C. Alpers.

No. 332. Hiram Wilson Elliott, Hosp. Stwd., U. S. Navy, U. S. Naval Station, Agana, Guam, rec. by W. B. Day and J. F. Rupert.

No. 333. Frederick C. Mayer, Marquette University, Milwaukee, Wis., rec. by C. W. Johnson and W. B. Day.

No. 334. Herbert M. Lerou, 289 Main St., Norwich, Conn., rec. by C. P. Gladding and J. G. Godding.

No. 335. Harrison E. Purdy, 100 Elizabeth St., Derby, Conn., rec. by C. P. Gladding and J. G. Godding.

No. 336. Samuel Bienstock, 990 Broadway, Hartford, Conn., rec. by C. P. Gladding and J. G. Godding.

No. 337. Otto Herman Mentz, 1057 Belmont Ave., Chicago, Ill., rec. by William Gray and W. B. Day.

No. 338. Herman C. Schuh, cor. 8th and Washington, Cairo, Ill., rec. by W. B. Day and Paul G. Schuh.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 29.

Philadelphia, Pa., August 16, 1916.

To the Members of the Council:

Motion No. 56 (*Election of Members; Applications Nos.* 315 *to* 338, *inclusive*) has received a majority of affirmative votes.

In regard to the adoption of Motion No. 54 (C. L. No. 28), William C. Alpers wishes to announce to the Council that he will appeal from this vote to the Association at the Atlantic City meeting.

The organization meeting of the Cuban Branch of the American Pharmaceutical Association was held July 24, 1916, at the Academy of Sciences of Havana, and the following resolutions were adopted:

Resolved, That the Cuban Branch of the American Pharmaceutical Association extend its salutations to the Council and fellow members of the Association.

Resolved, That the Cuban Branch of the American Pharmaceutical Association extend to the Council its thankfulness for the constitution of the Branch.

Motion No. 57 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 339. Lester LeRoy Buttery, Gonzales, Texas, rec. by R. H. Walker and Wm. B. Day.

No. 340. James W. Wise, Dover, Delaware, rec. by John O. Bosley and Reuben M. Kaufman.

No. 341. Arch Krieg, 1217 Quarrier St., Charleston, W. Va., rec. by Frank H. Freericks and John Uri Lloyd.

No. 342. Miss Angelica Curbelo, Pharm. D., Campanario, No. 41, Havana, Cuba, rec. by Jose Guillermo Diaz and G. J. Fajardo.

No. 343. Raoul D. Keim, 111 N. Market St., Chicago, Ill., rec. by Wm. Gray and Wm. B. Day.

No. 344. Lewis Moore Hires, High and Union Sts., Burlington, N. J., rec. by George M. Beringer, Jr., and Edgar R. Sparks.

No. 345. Leland S. P. Turner, 902 E. Bancroft St., Toledo, Ohio, rec. by Waldo M. Bowman and Wm. B. Day.

No. 346. Rudolph L. Meier, 1246 O St., Lincoln, Neb., rec. by E. O. Haschenburger and Wm. B. Day.

No. 347. James William Coppedge, care of W. H. King Drug Co., Raleigh, N. C., rec. by W. W. Horne and E. N. Zoeller.

No. 348. Albert T. Utley, 145 Main St., Norwich, Conn., rec. by Curtis P. Gladding and John G. Godding.

No. 349. Herbert A. Keith, Lake Preston, S. Dakota, rec. by E. C. Bent and Wm. B. Day.

No. 350. Thomas McCoy Watts, Holstein, Iowa, rec. by Wilber J. Teeters and Wm. B. Day.

No. 351. Howard Atkins Winn, Ph. G., 416 W. 11th St., Grand Island, Neb., rec. by L. A. Johnson and H. C. Newton.

No. 352. Adolph Schmidt, 330 5th Ave., McKeesport, Pa., rec. by J. W. England and W. H. Lackey.

No. 353. Charles H. Pinks, 13 W. Main St., Meriden, Conn., rec. by John G. Godding and Wm. B. Day.

No. 354. Luin Burt Switzer, Southport, Conn., rec. by Theodore Weicker and W. C. Alpers.

No. 355. Daniel George Sullivan, Watertown, Conn., rec. by John A. Leverty and Harrison E. Purdy.

No. 356. William S. Denton, 109 W. Main St., Beardstown, Ill., rec. by W. B. Day and Wm. Gray.

No. 357. Harry Noonan, president, The Drug Products Co., Inc., 48 W. 4th St., New York, N. Y., rec. by Wilber J. Teeters and Wm. B. Day.

No. 358. Stanislaus W. Burda, 1363 N. Ashland Ave., Chicago, Ill., rec. by Wm. Gray and Wm. B. Day.

No. 359. James Theus Munds, 208 Walnut St., Montclair, N. J., rec. by Harry W. Crooks and Edward A. Sayre.

No. 360. Thomas J. Driscoll, Fallkill Bldg., Main and Washington Sts., Poughkeepsie, N. Y., rec. by Thomas F. Main and Arthur S. Wardle.

No. 361. Carlos Vidal, Phar. D., P. O. Box 416, Cruces, Cuba, rec. by Jose R. Prieto and Jose P. Alacan.

No. 362. Earl Albert Tyler, 116 W. 70th St., New York, N. Y., rec. by Wm. B. Day and J. W. England.

No. 363. F. J. Zuck, Forest City Bank, Lawrence, Kansas, rec. by Wm. B. Day and C. M. Snow.

No. 364. John Gerhard, 643 N. 15th St., Philadelphia, Pa., rec. by George M. Beringer and J. W. England.

No. 365. Louis L. Staehle, 169 S. Orange Ave., Newark, N. J., rec. by George M. Beringer and J. W. England.

No. 366. Alexander Seidler, 21-23 Ferry St., Newark, N. J., rec. by George M. Beringer and J. W. England.

No. 367. Frank B. Winski, Stamford, Conn., rec. by E. H. Wisner and G. D. Timmons.

No. 368. S. M. Miller, Big Run, Pa., rec. by G. D. Timmons and E. H. Wisner.

No. 369. Chester E. Garl, Edwardsburg, Mich., rec. by W. O. Speer and G. D. Timmons.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

A. PH. A. COUNCIL LETTER NO. 30.

Philadelphia, Pa., August 24, 1916.

To the Members of the Council:

Motion No. 58 (*Election of Members*). You are requested to vote on the following applications for membership:

No. 370. Emil Roller, Ph.G., 574 Amsterdam Ave., New York, N. Y., rec. by Otto Raubenheimer and Frank L. McCartney.

No. 371. Robert Oscar Hurst, 391 Jarvis St., Toronto, Ont., Can., rec. by Charles F. Heebner and Alexander Stewart.

No. 372. Oscar Kellogg Whipple, Broad and Fayette Sts., Bridgeton, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 373. Leon A. Taylor, 100 Clifton Ave., Lakewood, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 374. William H. Owens, 341 Communipaw Ave., Jersey City, N. J., rec. by George M. Beringer and George M. Beringer, Jr.

No. 375. Albert Burtis Johnson, 410 River Ave., Point Pleasant, N. J., rec. by George M. Beringer and J. W. England.

No. 376. Edward D. Holmes, Havana, N. Dakota, rec. by W. P. Porterfield and Wm. B. Day.

No. 377. Oscar Hallenberg, 66 Broadway, Fargo, N. Dakota, rec. by W. P. Porterfield and Wm. B. Day.

No. 378. John H. Vold, 26 S. 3rd St., Grand Forks, N. Dakota, rec. by W. P. Porterfield and Wm. B. Day.

No. 379. John W. Needham, Finley, N. Dakota, rec. by W. P. Porterfield and Wm. B. Day.

No. 380. Max Henry Strehlow, Kindred, N. Dakota, rec. by W. P. Porterfield and Wm. B. Day.

No. 381. Charles F. Gorman, 142 Asylum St:, Hartford, Conn., rec. by Theodore Weicker and W. C. Alpers.

No. 382. Clark H. W. Newton, 63 Bank St., Waterbury, Conn., rec. by Theodore Weicker and W. C. Alpers.

No. 383. Bruno E. Hockert, 2 Holcomb St., Hartford, Conn., rec. by Curtis P. Gladding and John Godding.

No. 384. Francis Henry Shaffer, care of Strong, Cobb and Co., 206 Central Viaducts, Cleveland, Ohio, rec. by H. M. Whelpley and J. W. England.

No. 385. G. Ellyson, 11th and High Sts., Des Moines, Iowa, rec. by Wilber J. Teeters and Wm. B. Day.

No. 386. Robert Francis McDonald, M.D., 391 West End Ave., New York, N. Y., rec. by Otto Raubenheimer and Frank L. McCartney.

No. 387. Louis Spencer Levy, 80 Maiden Lane, New York, N. Y., rec. by Otto Raubenheimer and Frank L. McCartney.

No. 388. Clarence C. Sneider, 243 S. 9th Ave., Mt. Vernon, N. Y., rec. by Gustave Horstmann and Jacob Diner.

No. 389. Harry J. Novack, M.D., 595 Willoughby Ave., Brooklyn, N. Y., rec. by Otto Raubenheimer and Frank L. McCartney.

No. 390. Isidore Jacob Blumenkranz, 234 Rivington St., New York, N. Y., rec. by Charles W. Lehman and J. Leon Lascoff.

No. 391. Leon S. Lord, 267 Jewett Ave., West New Brighton, N. Y., rec. by Charles W. Lehman and J. Leon Lascoff.

No. 392. Max Hansburg, 489 3rd Ave., New York, N. Y., rec. by J. Leon Lascoff and Charles W. Lehman.

No. 393. Richard A. Austin, Cairo, N. Y., rec. by J. Leon Lascoff and Wm. L. DuBois.

No. 394. Elmer E. Chilson, 326 Monroe Ave., Rochester, N. Y., rec. by Charles W. Lehman and J. Leon Lascoff.

No. 395. Franklin W. Halbkat, Webster, South Dakota, rec. by E. C. Bent and Wm. B. Day.

No. 396. William Paul Lenocker, Bushnell, S. Dakota, rec. by E. C. Bent and W. B. Day.

No. 397. Albert D. Cooley, Summer & Ocean Aves., Seaside Heights, N. J., rec. by F. R. Stutzlen and David Strauss.

J. W. England,
Secretary of the Council.
415 N. 33rd St., Philadelphia, Pa.

MEMORANDA.

Resigned from the A. Ph. A., since July 18, 1916.

Treasurer Whelpley reports the following:

Stallings, R. E., Atlanta, Ga.
Seymour, James, Denver, Colo.
Matthews, C. E., Chicago, Ill.
Burvant, E. J., New Orleans, La.
Schiess, B. F., St. Louis, Mo.
Gordon, E., Bronx, New York, N. Y.
Bowie, R. T., Atlanta, Ga.
Marwell, O. A., Detroit, Mich.
Harrah, J. W., Minneapolis, Minn.
Trolinger, E. F., Nashville, Tenn.
Sister Superior, Columbus, Ohio.

LETTER TO THE EDITOR.

252 York Street, New Haven, Connecticut.
September 9, 1916.

To the Editor of the Journal of the American Pharmaceutical Association.

Dear Sir:

On page 804 of the August issue of your Journal in an article by Wilbur L. Scoville, are some statements which, if allowed to pass without criticism, will create a general belief in what is contrary to fact. I refer to this paragraph, namely:

"The Pharmacopœia is an authority on therapeutics, and its scope is controlled by therapeutic considerations, . . . The Pharmacopœia is controlled by the 'regular' school of practice, but the National Formulary makes no distinction between allopaths, homeopaths, osteopaths, chiropractors, or any other school of practice."

I cannot believe that Mr. Scoville intended to mislead the reader, but he cannot be at all cognizant of the facts, and he himself must be glad to withdraw what is manifestly untrue.

In the first place, the Pharmacopœia is not an authority on therapeutics, and it was repeatedly and distinctly so stated and so urged in various discussions held by the Sub-committee on Scope, a component part of the Revision Committee of the Pharmacopœia. I was a strong advocate that a drug which was therapeutically useless should not enter the ninth revision of the United States Pharmacopœia, but I was repeatedly and permanently outvoted, those who differed from me voting for the principle that the United States Pharmacopœia was "not a book on therapeutics." The Sub-committee on Scope, consisting of nine members, passed a "guiding principle" that a drug to be admitted to the United States Pharmacopœia should be of "therapeutic usefulness" or of "pharmaceutic necessity."

On the floor of the Pharmacopœial Convention held in 1910, it was stated that it was the duty of physicians to select the drugs, and the duty of pharmacists to decide how the preparations of the drug should be made. Neither was this obviously correct division of labor lived up to, nor were the "guiding principles" of the Sub-committee on Scope lived up to.

Of the fifty members of the Revision Committee only six were physicians engaged in the practice of medicine, and four of these physicians were members of the Sub-committee on Scope. Basing their recommendations on the fact that very many drugs and preparations in the Pharmacopœia of 1900 were therapeutically useless, this Sub-committee on Scope recommended the deletion of more than 150 drugs and preparations, and more than half of these drugs and preparations were recommended for the Pharmacopœia by the Executive Committee, only one member of which was a practising physician. This all-powerful Executive Committee also introduced into the Pharmacopœia drugs that had not even been passed upon by the Sub-committee on Scope. In other words, the votes, advice and decision of the hard-working Sub-committee on Scope, aiming at therapeutic usefulness of drugs that should enter the new Pharmacopœia, were largely turned down, over-ruled and over-voted by the Executive Committee (an all-powerful committee that passed on all recommendations of the sub-committees), and only one member of this Executive Committee is a practising physician, and therefore the only one qualified to pass upon the therapeutic value of a drug or preparation. Hence the reasons that more than half of the drugs and preparations recommended for deletion by the Sub-committee on Scope, and introduced into the Pharmacopœia by the Executive Committee, in spite of such deletion recommendation, were not therapeutic reasons. Therefore the book is *not* an authority on therapeutics and was not intended to be such. In fact, it is a book of valuable therapeutic drugs interspersed with several hundred drugs and preparations that are either useless or inferior to the few that are of value.

A drug, to have therapeutic value, must have some recognized activity on the human body. A very large number of those in the new Pharmacopœia have no such activity. Even the doses of the drugs are not authoritative, only suggestive. The dose of a drug is enough to produce the results required, more or less than the dose suggested by the Pharmacopœia.

That the Pharmacopœia is controlled by so-called "regulars" is another statement that is not a fact. Only four members of the Executive Committee, which committee is *entirely responsible* for the contents of the Pharmacopœia, have the degree of M.D. Hence the book represents the drugs and preparations that the expert drug men in all branches of the drug traffic desire to have in the book.

Also, one cannot well see how those who use no drugs in the treatment of disease could be interested in a book on drugs. Therefore, to intimate that such were shut out of the United States Pharmacopœia is a reflection on their supposedly drugless practice, and criticism cannot be made of the Revision Committee, thirty-two of whose fifty members are drug experts.

Exactly how the so-called osteopaths, their pseudo friends, the chiropractors, and "other schools of practice," perhaps mental and Christian scientists, *i.e.*, drugless treaters of disease can or will find the fourth revision of the National Formulary useful, is a question in psychology. And also it should be remembered that the state medical laws prohibit these sects from giving or prescribing drugs.

May I be pardoned for stating my right to call attention to these obvious mistakes of Mr. Scoville. I have taught materia medica for twenty-five years, have written several books on therapeutics; am a member of the Revision Committee of the Pharmacopœia, of the Sub-committee on Scope, and of the Sub-committee on Dosage.

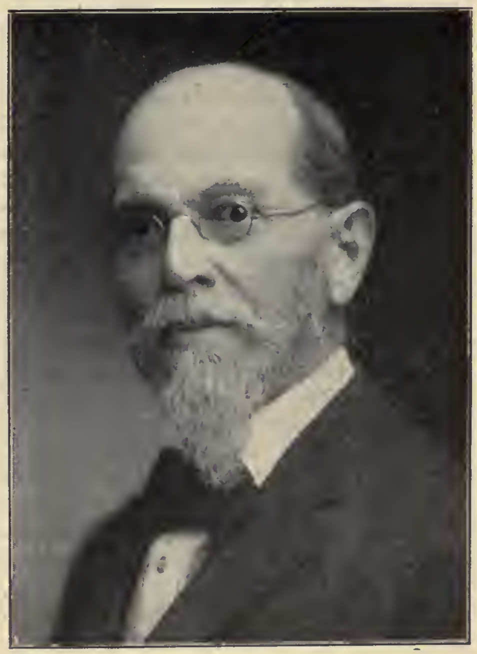
Yours very truly,
Oliver T. Osborne.

SCHEDULE B STAMP TAX REPEALED.

Schedule B of the emergency war revenue act has been repealed by the omnibus revenue bill, which has just received the President's signature, taking effect Saturday morning, September 9. The revenue bill also repeals the documentary stamp taxes included in Schedule A of the emergency war revenue act, including all bills of lading, express receipts, telephone and telegraph messages.

Manufacturers are now free to remove from their factory premises all goods included in Schedule B without payment of tax. Collectors of internal revenue have been instructed to assist manufacturers in the preparation of claims for the redemption of all unused stamps, and canceled stamps which have not been attached to goods. Refunds will also be allowed for stamps attached to goods which have not been removed from factory premises, provided the individual packages can be exhibited to deputy collectors in order that *each stamp* may be specially canceled. As to goods which have been removed from factory premises, the government holds that as the tax accrues upon removal no refunds can be made.

WILBER J. TEETERS, Iowa City, Ia.
Secretary, American Conference Pharmaceutical Faculties.



J. O. BURGE, Nashville, Tenn.
Elected Honorary President, American Pharmaceutical Association.

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.
Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, J. H. BEAL, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*
Office of Publication, 253 Bourse Building, Philadelphia, Pa.

SYMPOSIUM ON OCCUPATIONAL DISEASES AT CHEMICAL SOCIETY CONVENTION.

At the meeting of the American Chemical Society in New York on September 25 to 30, there will be conducted a symposium on occupational diseases, presided over by Professor Charles Baskerville, head of the department of chemistry of the College of the City of New York.

The symposium will consider the chemical trades, prophylaxis in chemical industry, diseases incidental to work in aniline and other coal-tar products, cedar lumber, mines, explosives, and a general discussion by the leading authorities of the country. These will include Drs. W. Gilman Thompson, F. L. Hofman, J. W. Schereshewsky, G. P. Adamson, H. N. Benson, W. A. Lynott, Alice Hamilton and Mr. J. B. Andrews.

A NEW BUNSEN BURNER.

A recent issue of the *Chemiker Zeitung* contains a description of a new form of Bunsen burner for which special advantages are claimed. There are two concentric tubes mounted on a suitable base, and the air is drawn through the annular space between the tubes, being preheated in its passage. Gas is supplied in the usual way to a jet at the base of the inner tube, but the amount of gas admitted can be regulated by a pointed screw that controls the gas passage before the jet is reached. The air supply is adjusted by screwing the outer tube up or down, thus opening or closing the passage at its base, connecting with the inner burner tube. Both tubes are opened out, cone shaped at both top and bottom. This form of burner gives a short, thick flame that completely envelops a crucible; but if a long, slim flame is desired, a short length of straight cylindrical tube is slipped into the inner tube of the lamp.

A RAPID METHOD FOR THE ESTIMATION OF FAT IN POWDERS.

S. P. Phillips in the *Journal and Pharmacist* reports on a rapid method for the estimation of fat in powders and which was primarily devised for the estimation of fat in cocoa. It is, however, applicable to any substance which can be freely divided. The process consists of extracting the fat from a known quantity of the substance with trichlorethylene, and of determining the fat in an aliquot part of the solution. Such a quantity of the substance as is likely to contain 1.3 to 3.5 Gms. of fat is weighed by difference into a six-ounce wide-mouthed, stoppered bottle (about 3½ inches high to the shoulder). One hundred mils of solvent at room temperature is added from a pipette, and the mixture is thoroughly shaken. The filter used is made by folding two filter papers, 9 cm. in diameter, together into the shape of a Soxhlet thimble and tying them into a small perforated cork (hole about one-eighth inch) which is then fixed on to the end of a 20-Cc. pipette. Filtration is hastened by pressure applied to the bottle by means of a tube passed through a bung, which also carries the pipette. In this way 20 mils of a clear solution are removed and the fat in it is determined on evaporation of the solvent. The total weight of fat in the substance taken is determined by multiplying by a factor, which varies according to the weight of fat obtained. Thus, if 0.3 Gm. is obtained, the factor is 5.04; if 0.5 Gm., 5.11; if 0.7 Gm., 5.165.

THE TOXICITY OF ARSENOUS AND ARSENIC ACIDS.

In a recent issue of the *Journal of the A. M. A.,* an editorial stated that compounds of arsenic are becoming so prominent in therapy, and the types of arsenic products for use in medicine have become so diverse, that any information bearing on their possible mode of action should be welcome. In further comment the article states that arsenic action is not due to the element, but to the ion, of arsenous acid, H_3AsO_3. Organic arsenic compounds in which the metallic atom is attached directly to carbon are only feebly toxic. In the course of time, within the body they seem to yield more or less arsenous acid, a reaction which may suffice to explain any pharmacologic potency possessed by the organic derivatives. It is a somewhat unexpected fact that the closely related arsenic acid, H_3AsO_4, its anhydride and its salts are far less poisonous than is arsenous acid. This statement has now and then been disputed, but only recently again substantiated at the pharmacologic institute of the University of Berlin by Joachimoglu. The relatively greater toxicity of arsenous in comparison with .arsenic acid could be demonstrated by the proportion of 10:6 in the case of the lethal dose required for intravenous injection in animals. Perfusion experiments with isolated frogs' hearts indicated the arsenous compounds to be 300 times as harmful as those of arsenic acid. In the case of the isolated intestine the contrast, though plain, was not equally striking. This has raised the question why there should be a marked disproportion in the relative toxicity of comparable quantities of arsenic and arsenous acids, depending on the mode in which the test is made. The explanation proposed is as follows: The toxicity of the arsenic acid depends on the reducing power of the tissues with which it comes into contact. By this means it is converted into the very poisonous arsenous compound. Some individual organs or tissues have comparatively slight reducing potency. In the isolated heart, for example, arsenic acid exhibits little toxicity. Throughout the living organism as a whole the reduction of arsenic acid appears to be far more readily accomplished; hence, after intravenous administration of the ordinarily less nocuous derivative, it may become more toxic so promptly by conversion to arsenous acid that the real difference between these related arsenic derivatives is no longer conspicuous. This may also explain some of the uncertainty or confusion which has existed in the past in respect to the comparative action of the two substances.

IMPROVING NEGATIVES FOR PRINTING.

Edgar Senior in *Knowledge* states that negatives which from faulty development or other causes are more or less imperfect in some parts may be considerably improved in many ways. For instance, suppose that the subject is one in which a heavy mass of foliage occurs in the foreground, together with a well-lit distance. Now in order to represent the distance correctly in the negative the foreground in many cases is almost entirely devoid of detail, and is shown in the print as a heavy black mass. In such a case, if the negative is coated (on the glass side) with matt varnish, containing a small amount of iodine dissolved in it (the quantity depending upon the circumstances of the case), heavy shadows in negatives can be made to print much lighter and the results improved to a great extent. The varnish, after it is applied, will dry in a few minutes, and then over the parts not required to be lightened it is removed with a penknife or a piece of rag, moistened with a little methylated spirit of benzole. The same means may be applied in the case of portraits and groups, only greater care is required in scraping away the varnish from the parts where it is not needed in order to prevent any marks from showing. Portraits taken out of doors frequently show very heavy shadows under the eyebrows and chin: these may be considerably lessened by applying a little color (either red or blue) on the glass side of the negative, and then dabbing it with the finger, so as to form a kind of stipple caused by the texture of the skin. If carefully applied, the method is very satisfactory, and will tend greatly to reduce the heaviness of such shadows.

OBITUARY

DAVID STRAUSS.

Another champion for better pharmacy and for higher education passed away on Saturday, August 19th. Taking his first plunge in the ocean at Squan Beach, Manasquan, N. J., on the first day of a well-earned vacation, David Strauss was swept away by the undertow, and after a series of mishaps in the attempts of his rescue, namely the breaking of a rope and the upsetting of a boat, his body was recovered.

Born in Elizabeth on October 15, 1866,

the son of Louis Strauss, David attended the schools in his native town, entered pharmacy and graduated from the New York College of Pharmacy in 1888, as a member of the celebrated "Blizzard Class." The New Jersey "trio" of that class were Strauss, of Elizabeth; Raubenheimer, of Irvington, and Reed, of Long Branch. In 1904 David Strauss bought the Garrigan Pharmacy, at the corner of Springfield Avenue and High Street, Newark, and became one of the most widely-known druggists in the State. He worked exceedingly hard for the betterment of trade conditions, and during the administration of Sheriff Frank Sommer, of Essex County, he gave valuable aid in the crusade against cocaine traffic.

In association work, David Strauss was particularly active in the New Jersey Pharmaceutical Association, which he joined in 1898. He did valuable work on the membership committee and also on the legislation committee, making frequent trips to Trenton to secure the passage of a new pharmacy law. He was a forceful speaker and the writer remembers with pleasure the many strong arguments which Strauss brought forth on various occasions. He served as president of the New Jersey Pharmaceutical Association during 1912–13.

David Strauss was appointed a member of the New Jersey State Board of Pharmacy in 1904, and was reappointed in 1909, and again in 1914. He was elected treasurer in 1907 and became president of the Board in 1913.

He joined the American Pharmaceutical Association in 1910, and he looked forward with pleasure to attending the Atlantic City Convention this year. Among his literary contributions we want to point out his Presidential Address at Allenhurst, published in Proceedings, N. J. Ph. A., 1913, and his article "Pharmacy is *not* going backward, but the character of some of the men is sadly deteriorating," published in *Practical Druggist,* April, 1913, pp. 23 and 24.

As a citizen, David Strauss was connected with many building and loan associations, with Beth Israel Hospital and the Hebrew Benevolent Association in Newark. He was also a member of Tyrian Lodge of Elizabeth. The funeral services were held at his home, 450 High Street, Newark, Rabbi Sol. Foster officiating. He is survived by his widow and his daughters, Mina and Mrs. Jacob Harris.

David Strauss will be missed by his many friends, especially by the members of the New Jersey Pharmaceutical Association and his classmates of the "Blizzard Class." He will forever be remembered by the New Jersey State Board candidates for his friendly manners and his encouraging ways. Let us hope that his words "Pharmacy is *not* going backward" will remain true.

Peace to his ashes. O. R.

THEODORE G. E. OTTO.

Theodore G. E. Otto, aged 53 years, member of the American Pharmaceutical Association, died August 6, 1916, at his home in Columbus, Ind.

He was born in Ripley County, Indiana, January 7, 1863, the son of Frank E. and Marie T. Otto. He was educated in the public schools of Friendship, Indiana, and the Lutheran school at Farmers' Retreat. In 1877 he entered the Friemelt Drug Store in Cincinnati. Later he attended the Cincinnati College of Pharmacy, graduating in 1883. The same year he came to Columbus and bought the drug store at Fourth and Washington Streets, in which store he successfully conducted his business until the time of his death.

Mr. Otto was the first member named for the Indiana Board of Pharmacy, and was successively reappointed. He was a member of the school board of his home city and also trustee of Wittenberg College, Springfield, Ohio. He was active in fraternal circles.

Mr. Otto is survived by his widow and two daughters.

SOCIETIES AND COLLEGES

THE 1916 PHARMACEUTICAL ASSOCIATION MEETINGS.

The conventions of the American Conference of Pharmaceutical Faculties and National Association of Boards of Pharmacy were successful in every respect. The attendance was not up to the expected for the reason that the contemplated railroad strike deterred many from starting on their journey, fearing that their return would be delayed.

The activities are reported elsewhere, and here it should be stated that the entertainment features were under the supervision of Chairman W. L. Cliffe who was tireless in his efforts.

The arrangements of the Atlantic City meeting of the American Pharmaceutical Association were as near perfect as could be expected, and here the preparations and conduct were in charge of Local Secretary Charles Holzhauer. The expression was general that the arrangements were well supervised and no complaint was made. These brief references are chiefly in acknowledgment of the services of these faithful members, who, with their assistants, contributed largely to the enjoyment and comfort of the visitors. A larger number of members were added to the membership of the American Pharmaceutical Association during the past year than ever in the history of the Association, approximating 450.

FIFTY-THIRD MEETING OF THE AMERICAN CHEMICAL SOCIETY, AND THE CHEMICAL EXPOSITION.

New York City, September 25–30.

The Second National Exposition of Chemical Industries will open Monday afternoon, September 25, at 2 o'clock.

The official opening of the American Chemical Society meeting will take place at 10 o'clock Tuesday morning, September 26, at the Horace Mann Auditorium, Columbia University, Broadway and 117th Street.

The Second National Exposition of Chemical Industries is already an assured success, two whole floors of the large Grand Central Palace having already been engaged, with prospect for the third floor. Practically all the large chemical industries of America will have exhibits which will offer an unexcelled opportunity for study to American chemists. There will be no entrance fee charged to members of the American Chemical Society. The member's badge obtained at the registration desk will admit him at all times.

The American Chemical Society, the Chemists' Club, American Institute of Mining Engineers, American Electrochemical Society, and the Technical Association of the Pulp and Paper Industry will all have booths at the exposition. The Bureau of Commercial Economics is collaborating in arrangements for a motion picture program at the exposition. The exposition will also have two large sections given over to the "Southern Opportunity" that awaits the industrial chemist, and a large section of exhibits for "The Paper and Pulp Industry."

DIVISION OF PHARMACEUTICAL CHEMISTRY.

Secretary Geo. D. Beal, of the Division of Pharmaceutical Chemistry, American Chemical Society, has sent out the following letter of interest to pharmacists:

The next meeting of the American Chemical Society will be held in New York City during the week of September 25th. All titles of papers to be read at the meetings of the Division of Pharmaceutical Chemistry should be in the hands of the Secretary not later than September 8th.

At the Urbana meeting this Division made a splendid showing. It not only had one of the longest programs in its entire history, but every paper on the program was read in full, and by one of the authors. Let us see if this record cannot be duplicated at this coming meeting.

The Secretary has no suggestions to make regarding titles for papers, as in his experience all of the papers presented to the Division have been full of merit. He does wish to ask, however, that all members presenting papers will see that abstracts are placed in his hands at the time of the meeting. Two of the authors of papers at the last meeting have not yet submitted their abstracts.

NATIONAL DRUG TRADE CONFERENCE LOOKING FOR DRUGGISTS WITH GRIEVANCES.

The National Drug Trade Conference is sending out circular letters in the interest of its work in seeking complaints of alleged malfeasance, substantial errors of judgment and improprieties of any sort on the part of both Federal and State inspectors and agents in the enforcement of the pure food and drug, narcotic and similar laws. A special committee was appointed at the meeting of the Conference in December, 1915, composed of many well-known pharmaceutical specialists to investigate the whole matter of the interpretation and enforcement of the food and drug laws, and this committee asks the co-operation of every jobber, wholesaler, manufacturer and retailer that real evils may be remedied. To quote from a recent circular of the committee as illustrating the work being done:

"A recently issued State bulletin announces that the tincture lemon peel, U. S. P., of a prominent manufacturer was 'two-fifths standard strength. Misbranded and adulterated.' The name of a reputable druggist as well as the manufacturer's was published in connection. Inquiry disclosed that the libelous statement was based on the supposition that tincture lemon peel, U. S. P., should contain the amount of oil required of lemon extract."

This is a sample of the abuses that are sought to be remedied by the scheme explained in the enclosed circular.

John C. Wallace, of Newcastle, Ind., is president of the Conference, and Charles Woodruff, of Detroit, Mich., secretary.

NORTHWESTERN UNIVERSITY SCHOOL OF PHARMACY.

The new third year of the Pharmaceutical Chemist course, announced last fall, will be offered this year in order to give several graduates of last year's Ph.G. class the opportunity of continuing the course. Additional work in drug assaying and commercial microscopy is offered.

Professor M. A. Miner has just returned from an extended trip through the west, visiting alumni in Denver, Salt Lake City and the cities on the Pacific Coast. He reports a most enjoyable trip.

PHILADELPHIA COLLEGE OF PHARMACY.

The Department of Pharmacy, Medico-Chirurgical College of Philadelphia was included in the merger of the latter institution with the University of Pennsylvania. Since then a consolidation of the pharmacy department with the Philadelphia College of Pharmacy has been effected. Prof. J. W. Sturmer becomes vice-dean of the Philadelphia College of Pharmacy and others of the former faculty of Medico-Chi have also been placed on the teaching staff.

In connection with the annual meeting of the American Pharmaceutical Association, in Atlantic City, there was held a function of much interest to the friends of Professor Samuel P. Sadtler, who had retired after 45 years of teaching, 38 of them in the Philadelphia College of Pharmacy. It has been the custom for years to hold a P. C. P. Alumni Dinner during the A. Ph. A. Convention; this year's dinner was a bigger affair than any of its predecessors, as it was a testimonial to Professor Sadtler, whose many friends, both in and out of the Alumni Association, were glad of the opportunity to do him honor.

The dinner was given at the Hotel Traymore, Atlantic City, Wednesday, September 6th, at 5.15 P.M., a preliminary reception being held at 5.00 P.M.

An exhibition at the Philadelphia College of Pharmacy of modern scientific pharmacy contrasted with pharmacy of a century ago has created much interest, not only with the members of the several pharmaceutical associations, druggists generally, but the laity as well. The exhibit includes a drug store of 1812, together with many interesting historical exhibits, modern pharmaceuticals and chemicals, a professional pharmacy fully equipped with scientific laboratories and ready to co-operate with the medical profession in the modern practice of medicine.

ST. LOUIS COLLEGE OF PHARMACY.

The department of practical pharmacy in the St. Louis College of Pharmacy will hereafter be in charge of Prof. Francis Hemm, as successor to Prof. James M. Good, who retires from active work in the college, and who has been made Emeritus Professor of Pharmacy.

Prof. Hemm will be aided in the lecture and laboratory work by Associate Professor of Pharmacy, Leo Suppan, and in the division of Commercial Pharmacy, by Associate Professor Gustav Rehfeld, Ph.D.

The other departments remain in charge of the old and well-known professors, in their respective branches.

THE UNIVERSITY OF ILLINOIS SCHOOL OF PHARMACY.

Last December the University of Illinois purchased for its School of Pharmacy, property at the corner of Wood and Flournoy Streets, Chicago, including eight city lots, aggregating 201 by 125 feet, and improved by two substantial buildings. One of these is a four-story college building, containing a large auditorium, several lecture and recitation rooms, as well as offices, a microscopical laboratory, and several smaller laboratories. This building was formerly occupied by a medical college. The second building was constructed for a hospital and is now being remodelled as a laboratory building, in which will be located the qualitative analytical laboratory, the laboratory for organic chemistry and the pharmaceutical laboratory. The college building was occupied by the school on June 1st.

The trustees of the university have appropriated $32,000 for refitting the buildings. The laboratories will be supplied with electricity, gas, compressed air, vacuum, and hot and cold water.

These buildings will be used by the School of Pharmacy exclusively.

STATE ASSOCIATION MEETINGS.

MONTANA.

President J. W. Corwin, in his address at the Missoula meeting, spoke for the encouragement of the College of Pharmacy of the University of Montana, and as a result the Association went on record in favor of an appropriation of $25,000 for the erection of a building with proper equipment. The resolution will be brought before the legislature and a strong effort made to secure the appropriation.

Addresses were made by President F. C. Scheuch and Chancellor Elliott, of the State university; A. E. Spriggs, of Helena; J. W. Corwin, of Park City; Dr. W. F. Goggswell, of Helena, secretary of the State board of health; Dr. E. H. Ehlert, biologist, of Minneapolis; and President Henry Suzzalo, of the University of Washington.

The following officers were elected for the ensuing year: President, Louis Dreibelbis, of Butte; vice-presidents, A. C. Roecher, of Bozeman, Henry St. John, of Victor, and Albert Doull, of Butte; secretary, J. A. Riedell, of Boulder; treasurer, C. R. Fuller, of Anaconda.

J. W. Corwin, of Park City, was elected delegate to the meeting of the American Pharmaceutical Association at Atlantic City. The Women's Auxiliary elected the following officers:

President, Mrs. C. B. Hoskins, Butte; first vice-president, Mrs. W. R. Montgomery, Butte; second vice-president, Mrs. Emil Starz, Helena; secretary-treasurer, Mrs. C. E. Mollet, Missoula.

The 1917 meeting will be held in Butte.

NORTH DAKOTA.

The thirty-first annual meeting of the North Dakota Pharmaceutical Association met at Fargo, August 1. Thomas H. Potts, secretary of the N. A. R. D., was present and delivered an address on the laws affecting the drug trade. The address of President J. W. Needham reviewed the drug trade of the country in general and conditions of North Dakota in particular.

The officers for the ensuing year elected at the convention follow: President, A. A. Bradley, Williston; 1st vice-president, Peter Mergens, Fairmount; 2nd vice-president, J. H. Vold, Grand Forks; secretary-treasurer, W. S. Parker, Lisbon; local secretary, J .H. Vold, Grand Forks; executive committee, J. S. Miller, Rugby; W. J. Orchard, Dickinson; and Homer L. Hill, Sutton.

The ladies' auxiliary, in session at the same time, elected as president, Mrs. Louise Jacobson, of Hankinson, and secretary and treasurer, Mrs. Peter Mergens, of Fairmount.

The travelers' auxiliary chose as president, M. Simonstad, of Devil's Lake, and secretary and treasurer, G. Hammond Brown, of Minneapolis, Minn.

The meeting next year will be held at Grand Forks.

SOUTH CAROLINA.

The fortieth annual convention of the South Carolina Pharmaceutical Association was held July 24th and 25th at Isle of Palms.

Many members were prevented from attending by the difficulty of travel due to the great storm which swept that part of the country early in the month.

Many papers pertaining to pharmacy were read and discussed and a report of the work done by the laboratory of the Medical College of the State of South Carolina was made by Dr. W. H. Zeigler.

The officers elected for the ensuing year were: President, J. M. Oliver, of Orangeburg; vice-presidents, I. A. Rigby, of Spartanburg, and D. Tilden Riley, of Florence; secretary and treasurer, Frank M. Smith, of Charleston.

The meeting next year will be held at Greenwood.

SOUTH DAKOTA.

The thirty-first annual convention of the South Dakota Pharmaceutical Association was held at Mitchell, August 8.

President H. A. Keith, of Lake Preston,

discussed general business conditions and the effect of the European war on various drug markets and prices. He spoke of the place of women in pharmacy and made suggestions as to changes in the pharmacy law.

Officers were elected for the ensuing year as follows: President, J. A. Pool, of Redfield; vice-presidents, W. P. Loesch, of Bruce, and Otto Ross, of Conde; secretary, E. C. Bent, of Dell Rapids; and treasurer, A. A. Woodward, of Aberdeen. F. W. Halbkat, of Webster, F. W. Bobb, of Mitchell, and D. X. F. Dexter, of Canton, will be recommended to the governor to fill a vacancy on the board of pharmacy.

The women's auxiliary chose Mrs. Hansen as president for the year.

Next year the meeting will be held at Watertown.

WYOMING.

The second annual meeting of Wyoming Pharmaceutical Association was held at Caspar. In the absence of President F. G. Huffman, Vice-president A. E. Roedel presided, and R. G. Cook acted as secretary.

Following a prolonged discussion the president was authorized to appoint a committee to draft a resolution recommending an amendment to the present law covering the sale of drugs and toilet articles by peddlers.

Officers for the ensuing year were elected as follows: President, Andrew E. Roedel, of Cheyenne; vice-presidents, Wilson S. Kimball, of Caspar, and C. B. Gunnell, of Evanston; secretary and treasurer, Ray J. Cook, of Caspar.

The meeting next year will be held August 5th and 6th, at Saratoga.

THE PHARMACIST AND THE LAW

ENGLAND PLACES BAN ON COCAINE AND OPIUM.

The British Government has brought into force very drastic regulations governing the importation and sale of cocaine and opium. This has been induced by an extensive surreptitious traffic in cocaine to soldiers who are stated to have acquired the habit of taking the drug from members of the Canadian expeditionary forces. With such a large number of men under arms the authorities have felt it incumbent on them to take the most stringent measures of repression. The importations of cocaine and opium are now prohibited by proclamation.

The opium habit is much practised in this country and the provision of opium in the proclamation is said to have been included as an aid to the authorities in stopping the extensive smuggling of opium to China and America. Regulations also issued deal with the distribution of cocaine and make it an offense to be in possession of the drug unless under stated conditions. The gift of the drug equally with the sale now becomes an offense.

FLUIDOUNCE STATEMENT UNDER HARRISON LAW AMENDED AT INSTANCE OF N. W. D. A.

The Treasury Department, at the request of the National Wholesale Druggists' Association, has so amended Treasury Decision 2292, of January 31, 1916, as to remove existing uncertainty with respect to the method to be employed in stating quantities of liquid preparations ordered on official forms authorized by the Harrison Narcotic Law. The difficulty has been that under the law dealers in ordering pints, quarts and gallons of goods were obliged to state the total number of fluidounces in the quantity ordered—if ordering three pints the dealer would be forced to add the equivalent, 320 fluidounces. The amended sections bearing upon this regulation are as follows, and were effective on and after August 17:

In entering items calling for narcotic preparations on the order forms issued by the Commissioner of Internal Revenue, in accordance with the provisions of section 2 of the act of December 17, 1914, the quantity of narcotic drug to the fluidounce, where put up in packages of fifteen ounces or less, shall be indicated in ounces, and where put up in packages containing sixteen ounces or more, may be entered in pints, quarts or gallons, provided the number of each and not the aggregate quantity of these units in a higher unit is entered on these order forms.

Where these order forms call for preparations or remedies in solid, powder, or other than liquid form, the quantity in ounces should be entered thereon, or if in tablet, pill, ampule or suppository form, the units or totals thereof need only be stated. The name of the particular narcotic drug in such preparations or remedies, tablets, pills, ampules or suppositories should be entered on these forms.

SEEKING TO AMEND THE PENNSYLVANIA ANTI-NARCOTIC LAW.

It is contemplated to amend the law applying to narcotics in Pennsylvania by making unauthorized possession of narcotic drugs a crime, whether proof of illicit sales is obtained or not. Also to provide a State institution to which habitues will be sent and there receive medical attention.

BILL TO LEGALIZE MAILING OF POISONS.

The National Association of Manufacturers of Medicinal Products, through its legislative committee, has introduced in Congress a bill to amend section 217 of the United States Criminal Code to permit the mailing of poisons. Charles M. Woodruff, secretary of the Association, explains the bill as follows:

" This bill introduced at the instance of the National Association of Manufacturers of Medicinal Products is comprehensive in that it relieves science, art and industry generally, as well as pharmacy and medicine from a deplorable condition respecting the mails which has existed for three or four years back.

" It should be borne in mind that the amendment to criminal section 217 affects only poisons and articles and compositions containing poison, which are not outwardly or of their own force dangerous or injurious to life, health or property.

" Under the present law, as it is phrased, such items, however useful or necessary they may be to art, industry and science, are unmailable. It is true the present law provides that the Postmaster General may admit them to the mails when prepared and packed for mailing according to regulations which Congress doubtless intended he should establish. Such regulation, however, does not exist. More than this it is doubtful whether the power granted to the Postmaster General is not an unconstitutional delegation of legislative power since section 217 creates an offense and then gives an administrative officer power to practically amend the penal law by admitting the prohibited articles to the mails under certain conditions.

" The amendment is believed to effect what Congress originally intended. Under it it will not be unlawful to mail poisons and articles and compositions containing poison not outwardly and of their own force dangerous, etc., if they are securely packed.

" The amendment goes further than this. It recognizes and confirms the power of the Postmaster General to prescribed rules and regulations for the preparation and packing of such articles for the mails; but it does not make the right to mail depend upon his exercise of that power.

" If the Postmaster General makes such rules and regulations then poisons and articles and compositions containing poison not outwardly and of their own force dangerous, etc., must be prepared and packed according thereto. This is in line with the decisions of the Supreme Court which have held that it is not unconstitutional for Congress to give executives the power to make administrative regulations, and when so doing to provide a penalty for the violation of such administrative regulations."

RESOLUTIONS PASSED BY THE PENNSYLVANIA PHARMACEUTICAL ASSOCIATION TO SHOW ATTITUDE ON U. S. PATENT LAWS.

Whereas, The pharmacists of the United States, owing to the European war, have been deprived of many of the chemical products used in medicine, and

Whereas, The American public is obliged to pay extravagantly high and unjustly extortionate prices for the synthetic drugs and medicines they are obliged to buy from foreign holders of patents on medicinal products, and

Whereas, The United States patent laws in granting product-patents, instead of process-patents to foreign manufacturers are hindering instead of " promoting science and useful arts " for which they are instituted, and

WHEREAS, The synthetic drug industry is primarily and basically dependent upon the dye-making industry, and as the dyestuff industry cannot be successfully carried on without ample tariff protection and the liberation of the infant American organic chemical industry from the bondage of American patent laws, which favor priority and deter invention and progress and which accord American protection to foreigners which their native countries deny them, and

WHEREAS, The present United States patent laws favor the creation of monopolies in this country by the citizens of Germany, France, Austria-Hungary, Italy, Japan and the Argentine Republic, which is denied the citizens of those countries by their own laws, and

WHEREAS, A patent on products creates a monopoly, not only on the product itself, but on all subsequent improvements in process for the making of the same, thereby destroying the stimulus for improvements and discovery through research, and

WHEREAS, The State of Pennsylvania, rich of minerals of both inorganic and organic nature, depends in a very great measure for its industrial development upon a properly ordered and organized chemical industry—Be it therefore

RESOLVED, That the Pennsylvania State Pharmaceutical Association go on record in requesting the Congressmen and Senators from Pennsylvania to strongly support the pending Tariff Bill, affording protection to American industries, and

BE IT RESOLVED, That a Bill be prepared for introduction in Congress through a Pennsylvania Congressman asking a change in the United States patent laws discontinuing the patenting of products but recognizing only applications for patents on processes, and, finally,

BE IT RESOLVED, That these resolutions be printed in the Proceedings and that a copy of these be forwarded to the President of the United States, the members ot the President's Cabinet, the officials of the United States Patent Office, the Senators and Congressmen from Pennsylvania, the officers of the United States Chamber of Commerce, and every State business men's and labor organization in Pennsylvania, and also to the journals of the American Pharmaceutical Association, the American Medical Association, the American Chemical Society, the Saturday Evening Post, the Collier's Weekly, and to the Hon. Congressmen Paige and Hill from Connecticut.

WAR DEPARTMENT

List of changes of stations during August, 1916, in the cases of Sergeants First Class and Sergeants, Medical Department.

SERGEANTS FIRST CLASS.

Charles F. Kimball, from Ft. Greble, to the Walter Reed General Hospital.

Robert R. Linden from Walter Reed General Hospital, to Remount Depot, Ft. Reno.

Charles F. Eble from Ft. Leavenworth, to Hospital Train Southern Department.

Robert L. Edwards, from duty with the Organized Militia, State of N. C., to duty in the Southern Department.

Halbert M. Beasley, from duty with the Organized Militia State of Mass., to duty in the Southern Department.

Walter E. Fender, from duty with the Organized Militia, State of Ill., to duty in the Southern Department.

Edward M. Pennypacker from Ft. Wadsworth to the Southern Department.

Maurice Kelly from Ft. Monroe, to the Southern Department.

Daniel C. Donovan from Ft. Niagara, to the Southern Department.

Lonzo R. Bice, from Ft. Ontario, to the Southern Department.

Carl G. Bopp from West Point to the Southern Department.

Oscar Kaufer, from the Army & Navy Gen'l Hospital to the Southern Department.

Ethel H. James, from the Walter Reed General Hospital, to the Southern Department.

Leslie H. Stein, from Ft. Bayard, to the Southern Department.

Albert G. Fisher, from Washington Barracks to the Southern Department.

Gabriel Cushman, from Ft. Winfield Scott, to the Southern Department.

George H. Paul, from Ft. Columbia, to the Southern Department.

Burton Hardenbrook, from Ft. Missoula to the Southern Department.

Archie Coffie, from the U. S. Disciplinary Bks., Ft. Leavenworth, Kan., to duty in the Southern Department.

Ambrose A. Bush, from duty in the Canal Zone, Panama, to Ft. Bayard.

SERGEANTS.

Peter J. Scanlon, from the Army and Navy General Hospital, to the Southern Department.

David T. Goodyear, from the Army and Navy General Hospital to the Southern Department.

Charles Brown, from the Walter Reed General Hospital to the Southern Department.

Frank Sandlin, from the Walter Reed General Hospital, to the Southern Department.

Cecil A. Miam, from the Walter Reed General Hospital, to the Southern Department.

Harry Brown, from the General Hospital, Ft. Bayard, to the Southern Department.

Joseph Schneider, from the General Hospital, Ft. Bayard, to the Southern Department.

Joe C. Rousseau, from the Aviation School San Diego, Cal., to the Southern Department.

Samuel R. Parker from Ft. Slocum N. Y., to Washington, D. C., for duty at the Army Medical School.

Clarence E. Hoverter, from Ft. Terry, to the Washington Barracks.

BOOK NOTICES

Publications of the United States Public Health Service, July, 1916; *Miscellaneous Publications No.* 12.

This pamphlet of 68 pages prepared under the direction of the Surgeon-General contains a list of the publications of the United States Public Health Service which, as a part of the campaign for the improvement of health and the sanitary conditions throughout the nation issues periodical and special publications designed for free and judicious distribution while the supply lasts. Thereafter they may be purchased from the Superintendent of Documents, Washington, D. C.

The present list includes the Bulletins of the Hygienic Laboratory, Public Health Bulletins, Weekly Public Health Reports, reprints from the Public Health Reports, Supplements to the Public Health Reports, Annual Reports, Yellow Fever Institute Bulletins and Miscellaneous publications published to date.

The pamphlet includes a comprehensive index of 18 double-column pages, a review of which suggests that many of the publications listed are of direct interest to members of the drug trade. This list of the publications may be had by application to the Surgeon-General of the Public Health Service, Washington, D. C., and requests should specify both the title and number of the pamphlet.

Among the many bulletins of special interest to pharmacists that are available for free distribution, Hygienic Laboratory Bulletin No. 107—"Digest of the Changes and Requirements Included in the Pharmacopœia of the United States, Ninth Decennial Revision, and in the National Formulary, Fourth Edition with References to the Titles not Continued from the Preceding Edition"—should be of interest to all who are actively engaged in the drug business either as proprietors or clerks. The Hygienic Laboratory Bulletins are usually of a technical character and are chiefly of value to those who are interested in the scientific relating to diseases and public health.

The available supply of these bulletins for free distribution is limited and not more than one copy of any publication will be sent to each applicant unless some special and sufficient reason is given.

As noted above persons who are desirous of securing a copy of this publication should address the Surgeon-General, U. S. Public Health Service, Washington, D. C., asking for a copy of Hygienic Laboratory Bulletin No. 107: "Changes in the Pharmacopœia and in the National Formulary."

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The American Pharmaceutical Association would be pleased to receive back numbers of the JOURNAL. There are some who have duplicate copies, and their consideration would supply the wants of others. The JOURNALS should be addressed to THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 253 Bourse Building, Philadelphia, Pa. Only the following numbers are desired:

1912	1914	1915	1916
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RUFUS ASHLEY LYMAN, A.B., A.M., M.D.
LINCOLN, NEB.

President, American Conference of Pharmaceutical Faculties
1916—1917

RUFUS ASHLEY LYMAN

JOURNAL OF THE
AMERICAN
PHARMACEUTICAL
ASSOCIATION

VOL. V OCTOBER, 1916 NO. 10

RUFUS ASHLEY LYMAN.

Rufus Ashley Lyman is a native of Nebraska. His parents migrated to Nebraska in territorial days. He was born on a farm near Table Rock, Nebraska, April 17, 1875, and obtained his early training in the country school. After graduating from the local high school, he entered the University of Nebraska in 1892. He was graduated in 1897, with an A.B. degree, having taken the classical course. During his university course, he became interested in biology, and took his A.M. degree in Animal Parasitology in 1899. He was also elected to the honorary scientific society of Sigma Xi, and is now president of the Nebraska Chapter. The following two years were spent in teaching in the public schools. He obtained his M.D. degree from the University of Nebraska, in 1903, and entered the practice of medicine in Omaha. In 1904, he went to the University of Nebraska in Lincoln as instructor in Physiology. In 1905, when the Department of Pharmacology was created in the Medical College, he became its head and continued in charge of this department until the Medical College was moved to Omaha in 1913. In 1908 through the efforts of Dr. Lyman, Dr. B. H. Ward, Dean of the College of Medicine, Dr. C. E. Bessey, Head of the Department of Botany, Dr. Samuel Avery, then Head of the Department of Chemistry, now Chancellor of the University, and Chancellor E. Benjamin Andrews, the School of Pharmacy was organized as a part of the Medical College. Dr. Lyman was made Director of the new school. In 1915 the school was raised to the rank of a college by special act of the Legislature of Nebraska, and Dr. Lyman was appointed Dean. The College of Pharmacy now has equal rank with the other colleges of the University. Pharmacy has thus been placed upon as dignified a basis as other professions in the University of Nebraska, because Dr. Lyman has insisted upon qualifications for entrance equal to those required in all the other colleges. Dr. Lyman is also a member of the Faculties of the College of Arts and Sciences, the Teachers' College, the Graduate College, the College of Medicine, and is the official advisor of all pre-medic students.

Of his activities outside of his vocation, he was proprietor of a drug store, for four years, and has at all times been active in the Nebraska Pharmaceutical Association, and has held various offices. He is a member of the medical fraternity of Nu Sigma Nu, and of the pharmaceutical fraternity of Phi Delta Chi. He is much interested in student activities, is a member of the University Y. M. C. A. Board, and is an elder in the Presbyterian church. He was married in 1899, to Carrie Day, a graduate of the University in the class of 1898, and has five children, four girls and a boy. His principal avocation has always been gardening, and he takes great pleasure in the drug garden of the University.

ELSIE DAY.

EDITORIAL

E. G. EBERLE, Editor **253 Bourse Bldg., PHILADELPHIA**

THE NEW PHARMACOPŒIA AND NATIONAL FORMULARY AS A MEANS FOR BRINGING ABOUT A CLOSER CO-OPERATION OF PHYSICIANS AND PHARMACISTS.

THE thought of bringing about a closer co-operation between physicians and pharmacists by mutually studying the Pharmacopœia and National Formulary in order to use it intelligently is not new, but more and further practical application should be made of the propaganda. Chairman Frank H. Freericks of the Section on Education and Legislation, A. Ph. A., very convincingly brought this to the attention of the members in his address before that Section. When the U. S. P. VIII became official, pharmaceutical societies in various localities met for discussion of the changes that were made in that revision, and physicians gladly accepted of the invitation to participate in the discussions, and in some instances outnumbered the pharmacists in attendance at these gatherings, thus evidencing their deep interest and desire to become informed.

The success of such meetings depends upon proper preparation of a program, and then, the selection of qualified men for the subjects to be discussed. Without such planning in advance and thorough preparation for intelligent discussion, the results will prove more than disappointing. On the other hand, if the attention which this propaganda or study is deserving of is given, there will be a growing interest. It is as much a necessity for the physician to have a knowledge of the drugs and preparations of the Pharmacopœia and National Formulary as it is for the pharmacist to have a thorough acquaintance with these two standards. This seems rather an unnecessary statement, but it presents the reason and purpose for such "get together" meetings.

J. Leon Lascoff, in a paper before the Section on Practical Pharmacy and Dispensing, pointed out that there were quite a number of modifications of formulas, more particularly in the preparations of the National Formulary, that would result in products quite different in taste and appearance from the corresponding galenicals heretofore official. The author in his paper tabulated the titles of these preparations in alphabetical sequence and commented briefly on the changes provided by the new standards, and such was the interest of the members that the request was made by the Section to have the contribution published in an early issue of the JOURNAL. In compliance we hope to have the paper in this number, and the suggestion is offered that reprints be made by pharmacists for distribution among physicians of their respective localities.

Pharmacists should not overlook the opportunity of co-operating with physicians in this matter, and by so doing they may save themselves not only annoyance but perhaps loss of trade and prestige by creating doubt in the minds of their patrons when a difference in dispensing is noted by them, without being pre-advised relative thereto.

It is mandatory that pharmacists have a thorough acquaintance with the U. S. Pharmacopœia and National Formulary, and these standards at this time afford pharmacists a perfectly legitimate opportunity for ethically advertising that they are informed, progressive and observant.

While they are furthering their own interests in that way they are also promoting the cause of pharmacy. Every pharmacist should do his part in the propaganda for a more general and extended use of U. S. P. and N. F. preparations.

E. G. E.

RESEARCH IS PREPAREDNESS.

THE industries of a country are influenced by the demand for their products. The development of the industries is dependent upon an increasing demand for the goods manufactured; necessity promotes demand and stimulates investigation.

Ordinarily, progression is along the lines of least resistance, extraordinary conditions develop energies that push obstacles aside or surmount them.

It is exceedingly more difficult to arouse an interest in research work when there is no compelling necessity for it, than when there are awaiting extraordinary inducements or when there is urgent demand for investigation. Under latter conditions possibilities are recognized and opportunities shaped into accomplishments.

Chemists may have known of the possibilities of chemical manufacture in this country, but not until recently did the American public know of them, when they were enabled to see what had already been achieved by a visit to the exhibition held in New York City under the auspices of the American Chemical Society. The exhibition was a revelation to everyone, and demonstrated the ability of American chemists and industries " to deliver the goods." Many new products were exhibited that would not have been manufactured in this country, at this time, if the conditions had not forced their production. The value of the exhibit, aside from the immediate interest and the revelation of possibilities, was the systematic showing of natural resources that are available for American manufacturers.

The fact that chemists responded to the necessity of the hour gained a hearing from the public and developed an educational campaign, which eventually will place the American chemical industries in a front rank. There has not been a full comprehension of what the establishment of such industries means. The universities, financiers and Government must participate in the movement. Educational opportunities for preparing chemists must be provided, investments must be made, railroads must help in exploitation of resources, and the Government must lend a helping hand and in some degree offer protection, at least for a time, against unreasonable or destructive competition of foreign manufacturers. While these industries would not be promoted if there was absent the opportunity for profit, the economic purpose should be paramount. If the American chemical industries are really to be extended and become established, there must be team work.

While research is to-day a popular topic for the chemist, a deeper interest along the lines should be awakened for pharmacy. Extraordinary circumstances have brought research in chemistry to the front, that of pharmacy must have its encouragement through a desire for progress and of service. Comparatively little assistance will be given to pharmaceutical research work, and hence requires courage and persistency for the cause if progress is to be made. Assistance cannot be expected of the Government, the universities have given little thought and limited appropriations to their pharmacy departments, the opportunities of the average retail pharmacy are not conducive to research work, hence it is up to the schools of pharmacy and the scientific departments of manufacturing houses to extend pharmaceutical research.

The contention of the medical profession is that therapeutic agents should be scientifically proven, but even they are not prepared for such limitations in their practice. Such limitation would reduce the size of the Pharmacopœia to a volume fitting the vest pocket in the judgment of some, and increase it to that of an unabridged dictionary according to the views of others. The functions of the medical profession are directed to the prevention and cure of disease and the relief of suffering, hence very liberal views should obtain relative to therapeutic agents; the narrow specialist may be just as hurtful as the lay adviser. Pharmacy cannot pass judgment or withdraw its service because of different views held by members of the medical profession, their duty is in providing the therapeutic agents and having them prepared according to attested standards, whether they be active constituents of plants, or a combination of all, or whether drawn from other sources. Research therefore is imperative, pharmacy must take up its problems and solve them. The address of Chairman W. L. Scoville is timely and should be carefully read and studied. E. G. E.

FOR TO-DAY

Above all, that I may not be a coward! That I may have courage—courage to be unmoved by the uncertainties of life, and without dread of loss, whether of friends, of health or of fortune: That I may come with a firm and tranquil mind to the work of this day, fearing nothing—ready to meet bravely failure or deprivation.

That I may bring to the day's efforts, good humor and a cheerful regard for all with whom I may come into contact: That I may not judge others hastily or with bitterness.

That I may not be grasping, but content with a fair share of this world's goods, willing to let others have theirs: That I may be diligent in the performance of duties and cheerful in manner: That I may be earnest in pursuit of the right.

That I may stand with open mind ready to receive the Truth in small affairs and in large—whether in learning new and better methods or in receiving that philosophy necessary to a brave, tranquil, well-poised, well-harmonized life.

John Brisben Walker.

SIXTY-FOURTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

SECOND GENERAL SESSION.

The second general session of the American Pharmaceutical Association was called to order by President Alpers, at the Hotel Chalfonte, Atlantic City, New Jersey, at 10 A.M., Wednesday, September 6, 1916.

Minutes of the first general session were read by General Secretary Wm. B. Day. (See report, p. 910, September number.)

THE PRESIDENT: You have heard the reading of the minutes. If there are no objections or corrections they will stand as read. (There being none, they were approved.)

THE SECRETARY: Mr. President, I have a few messages and telegrams of greeting. The first is a telegram from President-elect Frederick J. Wulling, addressed to President Alpers:

FRONTENAC, MINN., Sept. 4, 1916.

PRESIDENT W. C. ALPERS: Please convey to Convention my fraternal greetings and my regret and sorrow at my inability to attend. Uncertainty of strike delayed me, and now am laid up again with a not serious affliction. Hope the meeting will become notable for high achievements.
FREDERICK J. WULLING.

Greetings were received from the National Association of Drug Clerks. The Women's Organization N. A. R. D., Mrs. Nellie Florence Lee, secretary, sent greetings as follows:

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION, Assembled at Atlantic City, Sept. 6, 1916:

The Women's Organization National Association Retail Druggists extend most cordial greetings and best wishes to your association upon this its sixty-fourth anniversary, and as each one of you work at the "Loom of Life"

"And weave, and weave, and weave—
May you all look into the future and see
That you have not woven in vain.
You know not the length of warp nor woof.
You know not its given span.
So into each year's allotted tasks,
Be sure to put the best work you can,
That when at the end of your working day,
The shuttle falls from your tired hands,
And the loom shall lie at rest,
May each one hear the voice of the Master say,
Take the rest well won,
For the work thou hast done—
For 'twas done as thou thought best."

Sincerely and fraternally yours,
NELLIE FLORENCE LEE, *Secretary.*

A letter of greetings from Mrs. Fletcher Howard, Los Angeles, was read, also greetings from the Los Angeles Ladies' Organization and from Thomas D. McElhenie of Brooklyn.

A telegram of greetings from the California Pharmaceutical Association, and one from Honorary President F. C. Godbold, as follows:

NEW ORLEANS, LA., Sept. 4, 1916.

WM. B. DAY, Secretary, A. Ph. A., Hotel Chalfonte:

Regret that I cannot be with you in person to-day, as I am in spirit. Hearty thanks to officers and members for honoring me at San Francisco meeting.

F. C. GODBOLD.

5601 Rosemary Place.

The Secretary also announced greetings from the National Association of Retail Druggists, the National Association of Wholesale Druggists, the American Association of Pharmaceutical Chemists, and a number of other National Organizations, which, however, he stated are to be presented by their delegates and, therefore, no doubt, either have been or will be presented at the sessions of our House of Delegates.

THE PRESIDENT: You have heard these communications. What is your pleasure?

F. E. STEWART: I move they be accepted and take the usual course.

THE SECRETARY: Is it the pleasure of the meeting that President-elect Wulling's telegram be answered in some form?

C. B. LOWE: I move that we express our regret for his absence and hope for his speedy recovery to entire health and strength.

F. E. STEWART: I accept that as part of the original motion.

This motion was put before the session and carried.

Telegram from the American Fair Trade League was read as follows:

NEW YORK, Sept. 5, 1916.

WM. B. DAY, Secretary, American Pharmaceutical Association:

The American Fair Trade League sends cordial greetings and warmly appreciates co-operation of American Pharmaceutical Association in promoting cause of honest advertising and honest merchandising as represented in Stephens' Standard Price Bill. Victory is in sight but can only be won by continuance of earnest individual work.

EDMOND A. WHITTIER,

Secretary-Treasurer, American Fair Trade League.

C. A. MAYO: I move the communication be referred to the Commercial Section. It is a matter relating to commercial and legislative matters, and it might be well to have it brought before the Commercial Section and I move, therefore, to have it referred to the Commercial Section.

This motion was duly seconded, put before the convention and carried.

THE PRESIDENT: The next order of business is the report of the Committee on Nominations.

S. L. HILTON: The Nominating Committee expected to be able to report this morning but a condition has arisen whereby we are compelled to have a little more time and I would like an announcement to be made that the Nominating Committee will meet immediately after adjournment of this general session.

THE PRESIDENT: It is not necessary to repeat the announcement. The Committee reports progress and will have another meeting at the end of this session.

The next order of business is the minutes of the Council, by Secretary J. W. England.

(Minutes of the Council will appear under Council Business.)

THE PRESIDENT: You have heard the minutes of the Council, what is your pleasure?

A MEMBER: I move that they be adopted, Mr. Chairman.

(This motion duly seconded, put before the House and carried.)

Secretary England then read the minutes of the fourth session of the Council, which included a report of the Committee on Publication.

THE PRESIDENT: You have heard the comprehensive and most excellent report of the Publication Committee, what is your pleasure?

A MEMBER: I move that it be accepted with the thanks of the organization.

GEO. M. BERINGER: Do I understand that this is a report? I thought these were minutes of the Council.

THE PRESIDENT: I stand corrected. It is a part of the minutes of the Council, relating to the report of the Publication Committee.

GEO. M. BERINGER: I move that they be approved as read.

J. H. BEAL: Before the report is accepted I would like to ask a question or two. I think it is covered by the report of the Publication Committee, but I fear in such a lot of material the exact significance of the statements did not reach the consciousness of all of us. I want to inquire as to what charge is made for use of portion of the text of the National Formulary where the use is such that the book using it cannot be sold or used as a substitute for the Formulary itself but is rather in the nature of an educational text for the purpose of bringing the National Formulary to the attention of students, druggists and physicians, and in that sense is an advertisement. I would like to inquire just exactly what amount of compensation is exacted in such a case.

SECRETARY ENGLAND: Mr. Chairman, I think that is a very important question, a question upon which the members should have the fullest information possible. I would state at the beginning that absolutely no charge is made for a partial use of the National Formulary text in the manner indicated and I would like to repeat this part of the report.

(Secretary England then read the portion of the report covering this question.)

J. H. BEAL: I understood the report myself, but I wanted to make sure that all of the members here understood it. Now another question, the flat statement has been made that the Association charges for the use of formulas of the National Formulary, which has been interpreted by some to mean that if I wanted to use a formula from the National Formulary and I have not bought the book but get it from some other book or some other druggist, that thereby I owe something to the American Pharmaceutical Association. Now I am well satisfied in my own mind as to the status of the case but I would like to know from the Chairman of the Publication Committee whether such a state of affairs exists.

SECRETARY ENGLAND: Mr. Chairman, such a thought is absolutely unfounded. There is no charge whatever for the partial use of the National Formulary, so long as such use is not a partial or complete reproduction that can be used as a substitute.

THE PRESIDENT: Are there any further remarks? I then understand that the carrying of this motion put by Mr. Beringer carries along the adoption of the recommendation made in the Council minutes. Is that right?

Secretary England: Adoption of the Council minutes carries with it the recommendation. The only recommendation the Council has adopted so far is the first recommendation that the question of the cessation of the *Year-Book* be submitted to the members of the Association by mail along with the official ballots. In other words, the question will be, "Do you favor the issue of the *Year-Book* in monthly or quarterly instalments in the Journal, or do you favor the issue of the *Year-Book* as a yearly volume?"

Motion put before the members and carried.

The President: I now call for the report of the Treasurer.

The Treasurer (Henry M. Whelpley): Mr. President and members of the American Pharmaceutical Association: The annual report of the Treasurer for the fiscal year 1916 was printed in the Journal of the American Pharmaceutical Association, Volume V, pages 640 to 651. This was prepared in accordance with the By-Laws and has been approved by the Auditing Committee. I now submit a report showing the financial status of the Association at the present time and also reviewing some of the activities not recorded in the former report. I will say that in previous years I have submitted a corresponding report largely in verbal form. Last year the stenographer at San Francisco so mixed up that report that I made up my mind to give the entire report in written form at this meeting.

(This report is printed in September number, pp. 921–928.)

The President: You have heard the report, what is your pleasure?

T. J. Bradley: I would like to move that we extend the Treasurer thanks for this report and that it be referred to the Council to consider the various questions which the Treasurer has asked in it. He has not specifically recommended anything in it, but he has asked for guidance and the Council can consider it and report back to the Association.

In making this motion I wish to add a comment and this comment is in no way a reflection on the officers of the Association, but it appears to me we are not as good business men now as our forefathers were. We are in the position of spending more than we receive, running behind on our annual receipts in one direction and in the other direction our invested funds are increasing because they were so wisely administered and invested.

A Member: Mr. Chairman, in seconding this motion of Professor Bradley I would like to ask the Treasurer if he can tell us about what our membership ought to be so that the amount of dues would cover the necessary expenses. I don't know whether he can tell us but perhaps he has formed some idea what the number should be.

The Treasurer: I think an additional five hundred members would cover our present expense account.

A Member: It seems to me we ought to be able to get them.

The President: I tried to make a careful calculation in order to answer that question but it is exceedingly difficult to do that, just as the Treasurer will probably know himself. I figured out we need twelve hundred more members to meet expenses.

A Member: We ought to be able to get twelve hundred it seems to me.

The Treasurer: Mr. President, as a further comment on this report I would say that this year I have placed in my report a number of items that ordinarily I would have brought up to the Council direct, but it occurred to me it would be better to present this so it will appear in the proceedings for future reference.

Jacob Diner: Mr. Chairman, I would like to say it is refreshing and reassuring to the members to have this frank statement of facts, not only that the members may know where they stand, but also that the members may know that there is no attempt on the part of the officers to gloss over things which are essential for the membership to know. Now the question has been asked as to the number of additional members we ought to have in the Association, but very little has been said excepting in a general way as to the methods of securing the needed new members. It seems to me that consisting, as this organization does, of a number of men intimately associated with colleges, right there we have an opportunity for securing new members that has been more or less overlooked. I am speaking from personal experience in the matter to show that a little effort at times will be followed by a great deal of success and achievement for the benefit of the Association. I know that the New York Branch secured about one hundred new members this year without the expenditure of a single cent as far as the Association is concerned. I know that the colleges have been helpful in securing many of these members and it strikes me that this avenue of influx for new members has been too much neglected by perhaps a lack of consideration of the value of having members belonging to colleges on the Membership Committee. It is relatively an easy matter, when the students are full of glee and of satisfaction in having received word that they are entitled to their diploma, to make them feel that they are now members of a profession and that this satisfaction can be considerably heightened by belonging to the American Pharmaceutical Association. In my own college we succeeded in obtaining a hundred percent membership from the graduating class, and this can be done in every other college in the United States, and I would suggest that the men belonging to colleges be urged by personal letters from the Membeship Committee, by the President and no doubt by our ever-effective Treasurer, to work in that direction.

SECRETARY DAY: I wish to corroborate what Professor Diner has said, he interested the entire senior class for membership in the Association and deserves a great deal of credit for it. We have made efforts through the schools, and many of the schools are offering prize memberships. We are getting young men into the Association but not in the numbers that we should.

Now I would like to add a thought regarding the Treasurer's report. It has been suggested that we are somewhat in the position of a firm or an individual who is extravagant and living beyond his means. We have spent for several years from two to three thousand dollars more than our income. I do not believe that we are extravagant. I do not believe that we are living beyond our means. I think we are rather in the position of a business organization which, having a certain amount of capital, has decided to invest that capital wisely in the launching of a new enterprise. The reason that we have run behind these last three or four years has been that we made a very heavy expenditure for the JOURNAL. We expected to make a heavy expenditure for the JOURNAL at the time the JOURNAL was instituted. We knew very well that the JOURNAL would not immediately be self-supporting. We expected to invest money in it. We are investing money in it. We are coming to realize our expectations. The JOURNAL is coming very nearly to a self-supporting basis and the Publication Committee have to-day told us that from the present outlook the JOURNAL will be fully self-supporting next year, excepting so far as the salary of the Editor is concerned, and by a year or two later we can reasonably count upon the JOURNAL paying all expenses, including the Editor's salary. Now we have not been wasting this money. We have been putting it in the JOURNAL with the expectation of returns and good returns later. I think that is a viewpoint that ought not to be overlooked in this discussion of the finances of the Association.

THE TREASURER: The American Pharmaceutical Association is situated like a person working on a salary and has property that brings an income. Our dues may be compared to the salary, and may fluctuate from year to year, but it is a steady and certain income. Our funds are our property that brings an income. Now we have seen fit to try, and we are now focusing our argument on an effort to live on our dues, to live from the dues of the members, and to continue to add to the principal what we get out of an investment. For instance, we are getting seven hundred dollars a year from our Life Membership Fund. We are adding that to the fund. We are getting four hundred dollars a year from our cash that is put into registered bonds. That we are using in our current fund, but this seven hundred dollars we do not touch and we are in various ways adding to other funds wherever we can. Now I just simply call attention to the fact so that you will take this into consideration when you think we are extravagant.

H. B. Mason: This subject is one of very great importance, it seems to me. One aspect of this question has not been touched on. It is all very fine to say that an individual with a definite income may spend more than he earns because he has invested property, but it has been made clear this morning from the Treasurer's report I think that the income from our invested property which we can use is not sufficient to make up that annual deficit of three or four thousand dollars, and, furthermore, gentlemen, it seems to me this is a permanent organization that ought to be in existence fifty or a hundred years from now. We are building for the future as well as for the present and we want to look ahead and assure an independent and active future. Now it seems to me the height of folly for an organization like this to spend habitually more than it is earning. It seems to me from the Treasurer's report that apparently one-third of the income is used by the Journal. Another third of the income is used by the *Year-Book,* which leaves only one-third of the income then for a great host of expenses. I am not familiar enough with the organization to name what those expenses are. A third of our income, which is approximately ten or twelve thousand dollars a year, is not enough to pay for all those expenses. Now, gentlemen, there is one way it seems to me of having our outgo equal our income and not exceed it, and that is what I shall develop within a minute or two. It has been suggested this morning that if we increase our membership enough, we shall adjust outgo to income, we shall make enough money so we can stand this drain of three or four thousand dollars a year, but is not that a fallacy? Everyone of those new members must receive the Journal. Everyone of those new members must receive the *Year-Book.* It was figured out some months ago that for every five dollars we receive from a member we spend three dollars and eighty-five cents for publications for that member, the *Year-Book* and Journal, which leaves us one dollar and fifteen cents of every five we collect from members to pay the floating expenses or overhead expenses of this organization. Now if you have ten thousand members you have substantially the same problem, not actually, but substantially. Of course some overhead expenses will have a lower *pro rata,* but the point is this, gentlemen, some years ago when we established the Journal, and wisely established it, it took the place of the *Proceedings.* The supposition was we would spend the same amount of money we had previously spent for the *Proceedings* for the Journal, but the facts are, we have two expenses, we have two publications instead of one. We have the *Year-Book* and the Journal. Each of these, gentlemen, costs practically what the *Proceedings* used to cost, so you have doubled our publication expenses. Now the remedy to me is very simple, it is a practical one. It is one the officers of the Association do not agree with me in supporting. I have had some correspondence on the subject this year, but I would wipe out the *Year-Book.* There is an expenditure of three or four thousand dollars and if you discontinue the *Year-Book* you have discontinued a drain of three or four thousand dollars a year which amounts to the annual deficit; discontinue the *Year-*

Book and you adjust your outgo to income. What is the penalty? Some argue—wipe out the *Year-Book* and you take away all traditions. Well, tradition does not mean very much to me unless it has financial reasons behind it, and I do not believe the membership as a whole use the *Year-Book.* The great argument is—research workers need it; I contend the research worker does not get in our *Year-Book* what he wants, and furthermore he has other means of supply. As for the average member I do not think he ever looks at the *Year-Book,* and I think the man your Treasurer mentioned this morning is a typical individual. I do not mean to say the book is useless, but if we are spending three or four thousand dollars that way, it seems the part of wisdom to avoid such expenditure, and the way to avoid it is by discontinuing the *Year-Book* and then publish in the JOURNAL each month eight or ten pages of abstracts of what would appear in the *Year-Book.*

THE PRESIDENT: I would say for the information of Mr. Mason that the same question is in the hands of the Committee on President's Address, wherein the same recommendation is made.

The question of the Treasurer's report is before us. We are getting into an entirely different line of thought and argument.

Calls of question.

(Question put before the assembly and carried.)

THE PRESIDENT: The next order of business is the report of the General Secretary.

REPORT OF THE GENERAL SECRETARY.

TO THE PRESIDENT AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

During the past year the efforts of the General Secretary were chiefly devoted to the important task of building up the membership. To this end, a considerable correspondence was carried on and the support of many of the members was secured. Attempts were also made to assist in retaining the interest of members who had become indifferent to their obligations to the Association.

The results of the membership campaign are set forth in the report of the General Membership Committee. While not all that was desired or even expected, the gain in new members is encouraging and gives promise of further improvement.

Owing to the near approach of the new edition of the National Formulary, it was to be expected that the sales of the old edition should be small. It is rather a surprise then that 1060 copies of the N. F. were sold during 1915 and the income during the same period was $1399.42.

Even as late as March, 1916, it was found necessary to print and bind 250 copies to meet the current demand for the book. The income for the first seven months of 1916 amounted to $582.24.

In accord with the action of the Association at San Francisco, the receipts and expenditures for the National Formulary have been carefully designated as such, so that the Treasurer has been able to keep these accounts distinct from the current income and expense.

A large number of inquiries concerning the N. F. IV have been received and have received prompt attention. A considerable number of small orders have come to this office and have been promptly acknowledged and forwarded to the distributing agents.

The addressed labels for the distribution of the new *Year-Book* were supplied to the publishing house some time ago. The books are now being distributed but there have been unlooked-for delays, the latest being caused by a fire in the printing plant with the resulting damage by water of nearly a third of the edition, which the publishers will now have to reprint.

The stock of the N. F. III, 194 copies in the various bindings, has been stored in the Lloyd Library.

[SIGNED.] W. B. DAY,
General Secretary.

REPORT OF THE FINANCIAL ACCOUNTS IN THE CARE OF THE GENERAL SECRETARY.

A. Receipts and Expenditures on Account of the National Formulary from January 1, 1915, to December 31, 1915.

I. Receipts.

From sales and payment of bills due January 1, 1915	$1,524.98

II. Expenditures.

For Manufacture and Sale		$249.40	
Binding 400 copies	$46.00		
Printing and Binding, 500 Copies	120.00		
Express	50.01		
Postage	30.64		
Insurance on plates	2.75		
For Revision		558.44	
Salary (Honorarium) C. Lewis Diehl	500.00		
Printing and Postage for Committee	58.44	———	
Total			$807.84

III. Remittances.

To Treasurer, as per Treasurer's receipts	$1,524.84

IV. Sales.

To dealers and individuals, cash and charge accounts		$1,399.42
Number of orders filled	220	
Number of copies sold	1,060	

V. Accounts Unpaid.

By dealers, January 1, 1915	$283.91
By dealers, January 1, 1916	158.35

VI. Bills Due by the Association.

Remainder of Honorarium, voted to C. Lewis Diehl	$500.00

VII. Stock on Hand.

(At Lancaster, Pa.)

Copies bound in cloth	87	
Copies bound in cloth, interleaved	75	
Copies bound in sheep	22	
Copies bound in sheep, interleaved	34	——
Total		218

(At Secretary's Office.)

Copies bound in cloth	20		
Copies bound in cloth, interleaved	6		
Copies bound in sheep	3		
Copies bound in sheep, interleaved	0	——	
Totals		29	247

B. SUMMARY OF TOTAL RECEIPTS AND EXPENSES ON ACCOUNT OF THE NATIONAL FORMULARY SINCE 1888.

	Receipts.	Expenses.
To July 1, 1911	$43,480.10	$22,634.02
July 1, 1911, to January 1, 1912	1,632.46	718.63
January 1, 1912, to January 1, 1913	3,137.78	863.86
January 1, 1913, to January 1, 1914	3,192.82	1,095.20
January 1, 1914, to January 1, 1915	2,732.03	732.90
Totals to January 1, 1915	$54,175.19	$26,044.61
January 1, 1915, to January 1, 1916	1,524.98	807.84
Totals to January 1, 1916	$55,700.17	$26,852.45

C. ACCOUNT OF PROCEEDINGS AND YEAR-BOOK.

I. Sales of Proceedings and Year-Books:

Receipts from January 1, 1915, to January 1, 1916	$131.02
Remitted to Treasurer	131.02

II. Stock of Proceedings stored in Lloyd Library:

In cloth binding	2890
In paper binding	1369
Unbound	2617

III. Stock of Year-Books stored in Lloyd Library:

Volume I, 1912	269
Volume II, 1913	469

D. ACCOUNT OF BADGES AND BARS.

Receipts from Sale of Badges and Bars, January 1, 1915, to January 1, 1916		$61.50
Remitted to Treasurer		61.50
Expenses for Badges and Bars, January 1, 1915, to January 1, 1916		35.80
Postage		.74
Stock on hand, January 1, 1916:		
Gold badges	14	
Gold bars	80	

RECEIPTS BY MONTHS, JANUARY 1, 1915, TO DECEMBER 31, 1915.

	National Formulary.	Badges and Bars.	Proceedings.	Miscellaneous.	Total.
January	$75.55	.....	$49.94	....	$125.49
February	160.47	.....	.....	.....	160.47
March	252.91	.....	2.00	$2.00	256.91
April	47.29	.....	.....	.....	47.29
May	103.50	.....	.....	.....	103.50
June	186.65	....	.....	.....	186.65
July	36.43	.....	16.90	.....	53.33
August	95.65	$27.95	....	.....	123.60
September	135.87	.....	21.80	.....	157.67
October	118.88	29.05	9.50	.....	157.43
November	92.33	.....	26.25	.....	118.58
December	219.45	4.50	4.63	.....	228.58
Totals	$1,524.98	$61.50	$131.02	$2.00	$1,719.50

WM. B. DAY,
General Secretary, A. Ph. A.

SUPPLEMENTARY REPORT—NATIONAL FORMULARY.

EXPENSES ON ACCOUNT OF N. F. IV.

(January 1 to August 1, 1916.)

Honorarium to Professor Diehl	$500.00		
Labels and Plate	25.70		
Express on complimentary copies	12.24		
H. A. B. Dunning's expenses N. F. Committee	8.00		
Total		$545.94	

EXPENSES ON ACCOUNT OF N. F. III.

(January 1 to August 1, 1916.)

250 copies printed and bound	$80.00		
Express and postage	28.28		
Insurance on plates	2.75		
Collection of accounts, legal services	6.00		
Total		$117.03	
Grand total			$662.97

SUPPLEMENTARY REPORT OF RECEIPTS.

(January 1 to August 1, 1916.)

	National Formulary.	Badges and Bars.	Proceedings.	Miscellaneous.	Total.
January	$143.68		$10.00		$153.68
February	105.43		14.50		119.93
March	153.45		2.95		156.40
April	59.40		.....		59.40
May	13.89		9.90		22.89
June	16.05		.....		16.05
July	90.34		.....		90.34
	$582.24		$36.45		$618.69

STOCK OF NATIONAL FORMULARY III ON HAND AUGUST 1, 1916.

(At Secretary's Office.)

Copies bound in cloth	11	
Copies bound in sheep	7	
Total	18	

(At Lloyd Library, stored.)

Copies bound in cloth	112	
Copies bound in cloth, interleaved	34	
Copies bound in sheep	2	
Copies bound in sheep, interleaved	28	
Total	176	
Total		194

THE PRESIDENT: Gentlemen, you have heard the report of the General Secretary. What is your pleasure?

William C. Anderson: I move the report be received.

(This motion was duly seconded and carried by vote.)

C. Lewis Diehl: I wish to make a statement, Mr. President, that I think should go on record. As chairman of the Committee on National Formulary you are aware of the work that I have been able to do in it. Professor Scoville was appointed vice-chairman of that Committee and I want to say that it was possible only through the assiduity and the care that Professor Scoville exercised for us to have the National Formulary ready at this time.

(It was ordered that the statement be embodied in the report.)

The President: The next order of business is the Reports of Standing Committees.

The Secretary: The list of committees is published in the August number of the Journal and some of these committees are appointed by the sections and report to those sections. Some are appointed by the Council and report to the Council and some by special action report first to the various sections and later to this general body. The general Committees appointed by the President, some of these also report first to the sections. The first committee on the list of standing committees is the International Committee on Pharmaceutical Nomenclature of which Professor Otto Raubenheimer is chairman.

REPORT OF THE INTERNATIONAL COMMITTEE ON PHARMACEUTICAL NOMENCLATURE.

To the Members of the American Pharmaceutical Association:

Your International Committee on Pharmaceutical Nomenclature begs to report progress. It was the intention of the chairman and members to begin correspondence with foreign nations and especially with Dr. J. J. Hofman, secretary of the International Pharmaceutical Federation at the Hague, but owing to the war and the uncertainty of the arrival of letters in foreign countries, this had to be delayed.

Dr. H. M. Whelpley of this Committee is under the impression that our committee should be properly named Committee on International Pharmaceutical Nomenclature. However, your chairman hopes that as soon as peace is restored, work will be commenced and that a real International Committee on Pharmaceutical Nomenclature will be established throughout the civilized world in order to bring about uniformity.

How unsatisfactory, how confusing, in fact how dangerous these conditions are, is well exemplified by the nomenclature of the constituents of Digitalis, as correctly pointed out by George M. Beringer in a communication to the Committee.

We trust that the Committee will be continued and that conditions in Europe will be such that work can be done substantially.

Respectfully submitted,

Otto Raubenheimer, *Chairman*,
Franklin M. Apple,
George M. Beringer,
H. M. Whelpley.

The President: You have heard the report.

Jacob Diner: I move it be accepted.

The President: Does that acceptance carry with it a change of the name? It is not an International Committee, it is the Committee on International Nomenclature.

Jacob Diner: I believe such change would be subject to the action of the Council and should be so referred.

The President: If you wish so, but such reference is not necessary.

Jacob Diner: Then I move the recommendation be accepted and acted upon.

The motion was then put and duly carried.

The Secretary: The report of the Committee on National Legislation, John C. Wallace, Chairman.

John C. Wallace: Mr. President, I would say that the committee reported yesterday afternoon at the session of the Section on Education and Legislation.

The President: Then the report will reach the Association that way.

The Secretary: Committee on Pharmaceutical Syllabus, Professor T. J. Bradley.

Theodore J. Bradley: Mr. Chairman, I have a brief report, which is of a routine nature and carries with it one request and recommendation that the usual appropriation of twenty-five dollars for the necessary expenses be continued. See Report under Council Business.

Jacob Diner: I move the report be received and referred to the Council.

(This motion was seconded, put before the body and carried.)

The Secretary: Committee on Weights and Measures, Professor Arny, Chairman.

REPORT OF THE COMMITTEE ON WEIGHTS AND MEASURES.

To the Members of the American Pharmaceutical Association:

Your Committee on Weights and Measures can report a year of progress and can predict that metric legislation is plainly on the way.

It will be recalled that at the San Francisco meeting, your Committee announced that the American Association for the Advancement of Science and the Association of Food and Drug Officials had passed resolutions approving of a campaign of education on behalf of the metric system, and directing the appointment of a committee of five to co-operate with other national bodies in promoting such a campaign. Since our 1915 meeting, the American Chemical Society and the National Association of Retail Druggists passed similar resolutions, but to the great regret of your committee the National Wholesale Druggists' Association overlooked our request at its Santa Barbara meeting.

Taking up the matter by correspondence, the last communication was a letter received on August 23, wherein Secretary Holliday says:

"I telephoned this morning to Mr. Main, who is one of the delegates from the N.W.D.A. to the Atlantic City meeting of the A. Ph. A. We discussed this question thoroughly, and have decided to send the correspondence which you forwarded to me to Dr. A. W. Miller, who is the chairman of our delegation. Mr. C. Mahlon Kline is the third delegate, and Mr. Main will undertake to see that the position occupied by the N.W.D.A. on this subject is properly presented before your organization when it is taken up for discussion. I concur with Mr. Main in thinking that this is the best way to handle the matter, as it is probable that any action which may be taken at Atlantic City can be presented to our meeting in Baltimore during the week of October 2, and that favorable action may result."

We hope that the discussion at this meeting of the metric situation with our friends of the N.W.D.A. will result in the co-operation of that organization and the participation of its representatives in the Metric Conference which will be discussed later in this report.

Through the inadvertence of your chairman the metric resolution was not submitted at the meeting of the National Association of Manufacturers of Medicinal Products, but such a resolution will be submitted at the next session of that organization.

Since so many organizations have gone on record as favoring metric legislation, it seems highly desirable that the several committees gather together for a conference. It is now hoped that such a meeting can be held in New York City during the meeting of the American Association for the Advancement of Science next December.

An informal conference was held in New York City at which were representatives of the Wholesale Grocer's Association, the Canner's Association and our Association, in which the main question discussed was whether this was not the time to press the passage of a metric bill. Most interesting was it to hear the canners and the wholesale grocers state that the prize in sight, the capturing of South American trade, justified whatever inconvenience the transition from our present method to the metric system might entail.

As to legislation, Congressman Dillon of South Dakota again introduced a bill making the general use of the metric system compulsory in 1924. In its present phraseology it has not the support of those organizations with whose representatives your chairman has talked. While on the subject of national legislation, mention might be made of H. R. 528, introduced by Congressman Johnson of Washington, which provides that after January 1, 1920, the use of the Fahrenheit thermometer scale in Government publications be discontinued. This bill was discussed by your chairman in the *New York Times* and was approved by the New York Branch of our Association. At last reports, neither the Dillon nor the Johnson bill had passed the House.

An important step in metric progress was the issuance last February by the Department of Agriculture of Food Inspection Decision No. 163, which provides that statements of quantity upon labels may be in terms of metric weight or measure. Progressive canners have already started to label their packages under the Net Weight Law in both avoirdupois and metric units, thus bringing into almost every household homœopathic lessons in the relative values of the two systems.

During the past year there have been a number of interesting publications bearing on the metric system.

Foremost among these is Senate Document No. 241, which is a Report to the International High Commission Relative to the Use of the Metric System in Export Trade, prepared by Dr. S. W. Stratton, Director of the Bureau of Standards, which should be read by every one interested in the metric system. The importance of this document comes from the fact that it was prepared at the request of the Secretary of the Treasury as a member of the United States section of the International High Commission on Uniformity of Laws and from the fact that it can no longer be said by opponents of the metric system that it is merely the fad of professors and other "theoretical fellers." The report gives facsimile pages of catalogues of American firms quoting material in metric packages and tools (including screw cutting machinery) adjusted to the metric scale.

There appeared in the *Scientific Monthly* for December, 1915, an article on the metric system by Dr. J. V. Collins of the State Normal School, Stevens, Wisconsin, which has been largely quoted in the daily press.

Our own Mr. England read an interesting paper on the metric propaganda at the 1916 meeting of the Pennsylvania Pharmaceutical Association. The paper was printed in the July issue of the JOURNAL of our Association (page 723) with an appropriate comment by Editor Eberle.

Starting with these two contributions, the Bulletin of the Philadelphia Bourse published a timely article on the metric system, which has peculiar value, since it was prepared by a commercial association and thus was largely circulated among business men.

In conclusion mention must be made of the valued co-operation of our committee member, Dr. Asher, who has begun to issue a questionaire on the metric system among the teachers and students of the South. The work has not yet progressed sufficiently to admit of a comprehensive tabulation. The opinions so far expressed show a preference for the metric system and a regret that the mass of the people know so little about it. Dr. Asher, in commenting upon this phase of the question, says:

"One thing is quite evident from the answers received and which shows that there is so little attention given to this subject in either the elementary or high schools and it is only when one has to use it in connection with his studies in the sciences, does he appreciate its beauty and simplicity.

"In the summer school course of Physics this year, there were quite a number of teachers, and it was astonishing how few of them had any conception of the system and it was only when they were obliged to use it in their work in the laboratory, did they realize its proper conception. To my mind, if this system is to be made the universal and prevailing one of this country, we must inculcate its teaching in the lower grades and through frequent use to have them come familiar with it."

Respectfully submitted,

Philip Asher,
H. V. Arny,
Clyde M. Snow,
G. D. Timmons.

H. V. Arny: In supplementing this, Mr. Chairman, just a word or two. Since I have been here I have had the pleasure of conferring with our friends of the Wholesale Druggists' Association who were here and we have decided that at the general session is scarcely time to discuss the matter. In order to put this in proper form, I understand the House of Delegates receives resolutions and discusses them, and the discussion of the matter shall be brought before the House of Delegates. In order to bring it in the proper form I take the liberty of reading and submitting the following resolutions which I hope will be referred to the House of Delegates.

Resolved, that this Association approves the idea of a conference to be held in New York during December and authorizes its Committee on Weights and Measures to participate in such conference.

Resolved, this Association expresses the hope that the Wholesale Druggists' Association will also appoint a committee to take part in such conference.

The President: You have heard the report. What is your pleasure?

Jacob Diner: I move the report be accepted and the resolutions submitted to the House of Delegates for action.

(This motion was duly seconded, put before the Association and carried.)

The Secretary: Committee on William Procter, Jr. Memorial Fund, John F. Hancock is Chairman.

Chairman John F. Hancock: Mr. President, we had a bid on the first design that we presented to the Art Commission in Washington of six thousand dollars. Now it is increased to eighty-five hundred dollars. We cannot get a monument such as they would pass upon for less than that amount. We have a sketch here of the change made from the report made last year which I will exhibit to give you an idea of what the appearance of the monument would be now. Instead of a plain statue we have a statue professionally garlanded. The Art Commission is opposed to a plain statue. They want something very artistic, so the one that was first presented has been turned down and this one was proposed to our sculptor by the chairman of this Commission who is a sculptor himself. We are quite certain that if we can secure the eighty-five hundred dollars that the monument is assured. There will be no trouble in getting the grounds. When we were there, a petition was before the Commission on Public Grounds at Washington for a monument for which a hundred thousand dollars had been donated to Ex-President Buchanan, and Congress was so busy with other affairs that they did not have time to assign a space, and at the same time there were difficulties in the District of Columbia that were very much complained of by the citizens there. They only gave two-thirds of the appropriation which was usually given for the support of the City, and they were on hard lines, and demands were made on the Government. We were discouraged in our interviews with the committees of the Senate and the House because they said they could not make exceptions, they had too many small appropriations before them and would have to turn them all down.

According to the present report we have seventy-eight hundred dollars, and we have the balance to make up. We desire to collect a little more than we need because when the monument is dedicated we want to have the Association meet at Washington at that time. I was at the dedication of the monument to Professor Gross; the physicians had a nice program and a great many were in attendance, and that event really suggested the idea of this monument. If the pharmacists would only respond, if the members of this Association—some of them have given liberally—would all respond we would soon make up the amount that is necessary for this monument. Of course it has been talked of a long time but we are going to get it. Those who have a share in it will be those who subscribe, and it seems to me that they ought to feel some interest in securing this monument at the earliest possible time. I was in hopes it would be accomplished next year but it will take about a year to build the monument and we cannot possibly meet in Washington next year for this purpose.

I want to explain here when we went before the Committee I gave a sketch of Professor Procter's life work which Congress has had printed. I have had five hundred extra copies printed for distribution. And I will say further I corresponded with all the associations this year but I only got responses from a few. I believe that every state association—and the state associations are children of this Association—when the monument is selected and they find that they have not contributed anything, they will all be disappointed because if a state association will subscribe an amount, it is subscribed for all the members.

THE PRESIDENT: You have heard the report?

(A motion to adopt the report was made and seconded.)

JOHN B. THOMAS: Mr. President, I wish to say that this Association and every pharmacist in this broad land owes a great debt of gratitude to the hard and persistent work that Dr. Hancock has done in this matter. He has fathered this resolution, as I understand it, and he has been working along this line for about twelve or fourteen years. There seems to be a deficit now of about two thousand dollars. When this Committee appeared before the committee in Washington the idea was to have this monument erected on the Smithsonian Grounds, between Dr. Rush and Dr. Gross, thereby making an unbroken chain of medicine. We asked for an appropriation of two thousand dollars for the base of this monument. The committee would not listen to us favorably. Now it is simply up to the pharmacists or to this Association to raise this two thousand dollars and I think something should be done to come to the rescue of Dr. Hancock. His idea is that the sculptor will require at least a year to make this statue and we would like to have, or Dr. Hancock would like to see this consummated before 1917, which is the Centennial, as I understand it, of the death of Professor Procter. I hope the Association will take some action in this matter.

J. W. ENGLAND: Mr. Chairman, I should like to make an amendment to that motion that the question of securing the co-operation with state associations be referred to the House of Delegates for discussion and report. The House of Delegates ordinarily represents the state associations and I think we ought to be able to enlist the activities of the House of Delegates to secure the support of state associations.

JOHN F. HANCOCK: Mr. President, I would make a further remark, I believe if we would go before Congress at its next session—and this was suggested to me by Mr. Lipscomb, who has taken such an interest in the work—with the co-operation of the pharmacists we would get the appropriation, but I believe we better try and raise that ourselves, it is only a small amount, and with the war in Europe and Mexico we would have trouble in getting the appropriation. But we want to give the contract to the sculptor as soon as possible. We cannot do it next year, but we want the co-operation of the pharmacists in the country. If we can supply the pamphlets of Professor Procter's life I believe it would be very little trouble in getting what we want. It must be an earnest, persistent mental effort.

THE PRESIDENT: Now the motion is to refer this report to the House of Delegates for consideration and action. Any further remarks?

Calls for question.

Question put before the House and carried.

The Secretary proceeded with the call for committee reports.

The Committee on Closer Affiliation of Pharmacists and Physicians, Professor Joseph P. Remington, Chairman.

Committee on Time and Place of Meeting: Usually this Committee has reported at the last session.

Committee on Organization of Local Branches, T. J. Bradley.

REPORT OF THE COMMITTEE ON ORGANIZATION OF LOCAL BRANCHES.

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The Committee on Organization of Local Branches respectfully submit the following report for the past year.

During the past year three additional local branches of the Association have been established, namely, the Montana Branch, the Indianapolis Branch, and the Cuba Branch.

There are twenty local branches in existence at present. A study of the reports of their proceedings, as published in the JOURNAL of the Association, shows that the branches vary greatly in their activities. Probably these reports are not complete, but it appears that, during the past year, two branches each held nine meetings, four branches each held eight meetings, one branch held seven meetings, one branch held five meetings, two branches each held four meetings, one branch held three meetings, one branch held two meetings, four branches each held one meeting, and four branches held no meetings.

Evidently there is need of stimulation of the less active branches. Perhaps the present Committee should have begun this necessary work, but there is some question of our authority to do so, as the Committee is designated as the Committee on Organization of Local Branches. This title is unfortunate, as consultation of the records will show that the Committee has had very little to do with the organization of branches at any time, and, consequently, has never done much of anything. If the work of the Committee is to be restricted to organization only it might as well be abolished.

There is no question of the value of local branches to the Association and its members, and a committee properly constituted to look after them could do work of real value. With this possibility in mind the Committee makes the following recommendations:

1. That the name of the Committee be changed to "Committee on Local Branches."

We believe that the Committee was created by resolution only, and, if so, this change can be made without amending the By-laws.

2. That the Committee consist of seven members, to be appointed one each year, and as vacancies occur, the year in which each member's term expires to be designated and the chairman to be designated by the President of the Association.

This is the method used for several committees, as that on the Pharmaceutical Syllabus. Some such method is essential, as the work must have continuity, and this has been lacking in the past. Ordinarily the Committee has been appointed in December, or later, too late for effective work by correspondence in that Association year, and the Committee has considered itself discharged when its report was made in August. Then there has been no such Committee in existence, when most needed, until an entirely new Committee was appointed in the winter.

The Committee hands on to its successors the excellent suggestion, made by J. W. England, that papers of general pharmaceutical interest be secured during the winter, and copies be sent to each branch, to be read in designated months, and before publication in the JOURNAL of the Association.

Signed, THEODORE J. BRADLEY, *Chairman*,
FRANK H. CARTER,
ALFRED B. HUESTED,
CHARLES HOLZHAUER,
CHARLES F. KRAMER,
CHARLES W. JOHNSON.

C. A. Mayo: I move the acceptance of the report and the adoption of the recommendation. (This motion was duly seconded, followed by a favorable vote.)

The Secretary: The report of the Committee on Status of Pharmacists in the Government Service, S. L. Hilton, Chairman.

REPORT OF THE COMMITTEE ON THE STATUS OF PHARMACISTS IN THE GOVERNMENT SERVICE.

To the President and Members of the American Pharmaceutical Association:

As chairman of the above named Committee I herewith beg to submit the following report, showing the result of our endeavors since the last meeting.

In my report to the San Francisco meeting, I pointed out that we had met with opposition in the War Department and that the Committee on Military Affairs, House of Representatives, would not give any consideration to the Hughes bill, owing to the adverse report on same by the Secretary of War. I further recommended that we should use our best endeavors with the Surgeon General to overcome the objections that had been raised by the Secretary and Chief of Staff. This course has been followed since the last meeting and I am hapyy to report I received the greatest consideration from Surgeon General Gorgas, and his assistants, so that, when the Surgeon General appeared before the Congressional Committee, at its hearings on the re-organization of the Army, he succeeded in convincing the Committee as well as the Secretary, that something should be done for the Hospital Corps. The bill reported has now become a law, everything we asked and contended for with the exception of obtaining a commission for the highest rank in the Corps was obtained.

I have talked recently with several members of the Hospital Corps and they have expressed themselves freely as being well satisfied with what has been obtained for them and with reference to obtaining a commission for the ranking grade, they seem to care for this but little, owing to the social duties incident thereto.

Under the recent Act of Congress reorganizing the U. S. Army, the Hospital Corps becomes the enlisted force of the Medical Department, two new grades are provided, Master Hospital Sergeant, at $75 per month, and Hospital Sergeant, at $65 per month and allowances.

Below these grades come the six former grades ranking in pay from $15 to $50 per month, for Sergeants, first class, and allowances as heretofore.

Master Hospital Sergeants are to be appointed by the Secretary of War, but only after an examination before a Board of Medical Officers, which examination shall include pharmacy, and the applicant must have served at least 12 months satisfactorily as Hospital Sergeant or Sergeant first class. It is further provided that the total number of enlisted men in the Medical Department shall be approximately equal to but not exceed five percentum of the total enlisted strength of the army authorized by law. This provision of the law automatically takes care of the enlisted men of the Medical Department under all conditions, consequently it will not become necessary to go to Congress or seek an executive order of the President to provide the proper number of men under all conditions.

As the details of the reorganization with reference to the enlisted men of the Medical Department of the Army was published in the April number of the Journal I see no reason for again presenting this.

The reorganization of the Naval Service, under the provisions of the Act of Congress, about to become a law, will necessitate an increase in the number of pharmacists in the service. Secretary W. B. Day recently called this to my attention and that in planning for same the Bureau of Navigation, Navy Department, had issued an order that no one should be eligible who was over 35 years of age, this order at once made ineligible about 30 of the Hospital Stewards who have given to the service the best years of their life and have also worked hard to make a good record and become eligible for promotion to pharmacist, which position carries with it a commission, a very gross injustice. I at once took up the question with the Bureau of Medicine and Surgery and was accorded a hearing by the Chief of the Bureau. I apprised them of the deep interest our organization had in seeing good men in the service and pointed out the injustice to those who had rendered faithful service as Hospital Stewards, by eliminating so many of them on account of age and that such action would keep out of the service capable men.

The Chief of the Bureau expressed his pleasure at the position we took on the question and stated that they were not in accord with the Bureau of Navigation, as the Hospital Steward composed some of the best men they had, and that he had been in conference with the Secretary of the Navy on this question, pointed out the facts and as a result thereof the Secretary had issued an order abolishing the age limit. After the issue of this order I called on Secretary Daniels, and extended the thanks of the American Pharmaceutical Association, to which I received the following reply, that he was glad to receive a representative of the Association and that he had great pleasure in correcting the injustice. This interview was most pleasant and cordial and developed the fact that Secretary Daniels, in his younger days spent several years in the drug business. He expressed himself regarding the Hospital Stewards, by saying that they were efficient and reflected credit on themselves and the service.

I would therefore recommend that the American Pharmaceutical Association, in convention assembled, extend a vote of thanks to Surgeon General Gorgas for the efficient work accomplished in the reorganization of the Hospital Corps, U. S. Army; and to Secretary Daniels, for removing the injustice about to be done the Hospital Stewards, U. S. Navy.

Respectfully submitted,

S. L. HILTON, *Chairman.*

S. L. HILTON: In connection with the work of this committee it has recently come to my attention, and since the writing of that report, another condition existing with reference to the pharmacists in the Public Health Service. Back in 1913, in an efficiency act there was a provision made for a slight increase in pay to the pharmacists in the Public Health Service. This was approved by the President and was about to be carried out on the recommendation of the Surgeon General of the Public Health Service and the Secretary of the Treasury, but the Comptroller of the Treasury ruled under the particular wording of the act that the section of the act annulled itself. The men in the service have not received the slight increase in pay to which they are justly entitled, and in connection with this report I would like to present the following resolutions so that they may be acted upon at the proper time by this association and copies forwarded to the Surgeon General of the Public Health Service and the Secretary of the Treasury requesting that they again take up the question with the Comptroller and point out the injustice, and that he had a misconception with reference to the duties of the pharmacists in that service. Whether it will be proper to present this at this time I will have to ask.

THE PRESIDENT: It can be presented by you and referred to the House of Delegates.

RESOLUTIONS RELATING TO COMPENSATION OF PHARMACISTS.

Whereas, the revised regulations of the U. S. Public Health Service, approved by the President March 4, 1913, prescribed a new scale of pay for the pharmacists; said pay being a small increase in their compensation and to become effective January 1, 1914; and

Whereas, on the same date the revised regulations were approved by the President (March 4, 1913) Congress passed an Act making appropriations for the Legislative, Executive and Judicial expenses for the Government for the fiscal year ending June 30, 1914, Section 7 of which reads in part, as follows:

"Section 7. That no part of any money contained herein or hereafter appropriated in lump sum shall be available for the payment of personal services at the rate of compensation in excess of that paid for the same or similar services during the preceding fiscal year and the Heads of Departments shall cause this provision to be enforced," and

Whereas, Section. 7 as quoted above prevented the new scale of pay for the pharmacists from becoming effective, for the reason that it was a slight increase over what they received the preceding fiscal year; and

Whereas, on August 14, 1912, Congress passed an Act authorizing the U. S. Public Health Service to study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage and the pollution either directly or indirectly of navigable streams and lakes of the United States; and

Whereas, when subsequent appropriations were made and became available for the new duties imposed upon the Public Health Service by the Act of August 14, 1912, it was found that the volume and character of the work of the pharmacists were greatly increased by reason thereof; and

Whereas, this same Act of August 14, 1912, increased the volume and changed the character of the work of the professors in the Hygienic Laboratory, and their case submitted to the Comptroller of the Treasury, and the Comptroller having rendered an opinion dated April 18, 1914, in which he held that the increased volume of work and change of character of work, due to the Act of August 14, 1912, were sufficient to take their case out of the statute (Sec. 7 quoted above); and

Whereas, this same Act of August 14, 1912, increased the volume and changed the character of the work of the pharmacists in the same manner as the professors, and probably to a much greater degree, and

Whereas, the pharmacists of the Public Health Service have no increase in pay for about 14 years; therefore be it

RESOLVED, that the American Pharmaceutical Association, now in session at Atlantic City, N. J., earnestly requests Surgeon-general Rupert Blue, U. S. Public Health Service, and the Hon. Wm. G. McAdoo, Secretary of the Treasury, to use their best efforts in submitting the case of the pharmacists to the Comptroller of the Treasury as was done in the case of the professors in the Hygienic Laboratory, in an effort to get their case removed from the statute (Sec. 7 quoted above); in order that the new scale of pay for the pharmacists as prescribed in the revised regulations approved by the President March 4, 1913, may be made effective at the earliest possible opportune time; and be it further

RESOLVED, that copies of this resolution be forwarded by the Secretary of this Association to the Hon. Wm. G. McAdoo, Secretary of the Treasury, and Surgeon-general Rupert Blue, U. S. Public Health Service, Washington, D. C.

C. A. MAYO: I move that the report be accepted and the recommendations contained therein be adopted, namely vote of thanks to the Surgeon General, vote of thanks to Secretary Daniels, and the resolution just read regarding the Marine Hospital Service be adopted as proposed by the Chairman.

(This motion was duly seconded, put before the body and carried.)

THE SECRETARY: We have but two more committee reports. I am not sure that those will be made. The committee to confer with manufacturing houses with a view to conserving to retail pharmacists the manufacture of U. S. P. and N. F. preparations of which F. H. Freericks is Chairman.

REPORT OF COMMITTEE TO CONFER WITH MANUFACTURING PHARMACISTS WITH A VIEW TO CONSERVING TO THE RETAIL PHARMACIST THE MANUFACTURE OF U. S. AND N. F. PREPARATIONS.

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION:

Your committee has given much thought to the task given it. Different views expressed by the Committee members made it apparent that it would not be possible to outline a plan or scheme of operation for carrying on this work, unless some of the leading manufacturing pharmacists be first approached to learn their viewpoint.

How to do this in a broad minded manner and yet without lessening the chances for, at least, some success was a problem of itself, causing added delay. However, the Chairman of your Committee submitted the entire matter of its proposed task to twelve of the leading manufacturing pharmacists, requesting their consideration and helpful suggestions in order to define, if possible, the respective legitimate sphere of the manufacturing pharmacist and of the retail pharmacist. At the same time they were requested to give an expression regarding the feasibility of leaving to the retail pharmacist alone the field of manufacturing U. S. P. and N. F. preparations when such is practical on a small scale. Responses have been received by the Committee from seven of the twelve manufacturing pharmacists, all of them alike courteous, and most of them expressing an interest and desire to be helpful if possible. Where the direct question was touched upon at all, all of said manufacturing pharmacists made it frankly and clearly plain that they did not regard as feasible any plan of business under which the Manufacturing Pharmacists would refuse to supply such U. S. P. and N. F. preparations as the retail pharmacist might see fit to order from them. In short, there was absolutely no disposition to entertain the possibility of refraining from the manufacture and sale of U. S. P. and N. F. preparations which properly are within the province of the retail pharmacist to make, or rather which it should be the duty of the retail pharmacist to make.

Your Committee is not at all prepared to question the correctness and justice of the position of the manufacturing pharmacist, as here stated, when regarded purely in the light of correct commercial enterprise. We can only express the wish that it might be otherwise, and now the conviction that in the particular referred to the remedy must be found with the retail pharmacist himself, many of whom, no doubt, should be educated to realize the responsibilities which they owe to pharmacy and to themselves as pharmacists. By no means do we want to be understood as not to the fullest appreciating the high and ideal aim which was sought through this Committee by Chairman Thiesing of the Commercial Section. To the contrary, regarding the matter from its professional aspect, we must thoroughly endorse the suggestion made by him in that respect, and even now are inclined to believe that its influence for good will be appreciable and lasting, and that it will have brought home to some retail pharmacists a better understanding of their correct duty as such, while, no doubt, it has left in the minds of some manufacturing pharmacists the thought that a special effort for supplying the retail pharmacist with U. S. P. and N. F. preparations is possibly not desirable.

The manufacturing pharmacist may be correct in stating that this problem can be solved only by the retail pharmacist himself, but he can give wonderful aid in educating along that line such retail pharmacists as may need it, and, if with the co-operation of all concerned, the impression is conveyed that it is not exactly the correct thing for those who claim to be retail pharmacists to buy their U. S. P. and N. F. preparations, such as they can readily make themselves, then the present and growing evil condition will soon be largely cured.

We do not leave out of mind, that the recommendations of Chairman Thiesing as made last year pointed out particularly the desirability and justice to have the manufacturing pharmacists discontinue the practice of inducing physicians to designate U. S. P. and N. F. preparations of their particular manufacture. Without doubt it is a positive burden upon the retail pharmacist to be required to carry the same standard preparations as manufactured by a number of different houses. If present-day commercial enterprise does not permit the discontinuation of seeking to supply retail pharmacists with ordinary U. S. P. and N. F. preparations, then, at least, it does not require that an indirect pressure should be brought to bear upon the retail pharmacist to buy such products where otherwise he would not desire to buy them. It seems to us, however, that this Committee should not recommend any definite action or stand on the part of the Association without the matter first having had a full and free discussion by all concerned, and particularly should some general expression of opinion be had from retail pharmacists before any definite position be announced. We urge that, if this Committee be continued, it devote its particular attention to that feature, in order to define what may be correct practice in that respect on the part of the manufacturing pharmacist.

On the broader question of in some manner defining the respective legitimate sphere of the manufacturing pharmacists and of the retail pharmacists, we are of the opinion that it deserves further and most careful consideration. It, of course, must involve all of the respective activities. It must be in mind that the retail pharmacist of to-day operating within the correct sphere as such may tomorrow, and legitimately, grow into a manufacturing pharmacist, supplying the needs of other retail pharmacists. A line of demarcation will be difficult, but not by any means impossible to find. The matter is such that it should find primarily the joint consideration of a committee made up of both manufacturing and retail pharmacists.

Respectfully submitted,

FRANK H. FREERICKS, *Chairman,*
JACOB DINER,
FERDINAND A. BONGARTZ,
CARL WINTER,
JOSEPH WEINSTEIN.

CHARLES H. LA WALL: Mr. Chairman, I move the report of this committee be accepted, with thanks for their painstaking efforts and the committee be discontinued.

JEANOTT HOSTMANN: I second the motion, Mr. Chairman.

(This motion was duly voted on and carried.)

THE SECRETARY: The Committee appointed in regard to an effort to have an understanding with dispensing physicians and so forth, Dr. Charles Caspari, Chairman. Dr. Caspari is not here nor any members of this committee.

THE PRESIDENT: This completes the list of standing committees. The next order of business, reports of special committees. Are there any special committees that wish to report?

THE SECRETARY: There is only one.

THE PRESIDENT: There is only one in existence to my knowledge, that is the Committee on President's Address, which it seems is not ready to report. Next comes incidental business.

THE SECRETARY: The Secretary of the House of Delegates offers the following: " I herewith submit the following amendment to the By-laws, to amend the By-laws by adding a new article to be numbered Article XI to read 'That there be and hereby is created a House of Delegates to have and exercise such functions as may be hereafter specified by the Association.' "

THE PRESIDENT: Is this motion seconded?

Motion seconded.

MR. HOSTMANN: In explanation of the presentation of this amendment I would like to say that it was my idea that if this amendment was submitted here, and in order to be able to act upon it at the next session, which will be held on Friday, that after it had been discussed in this general session that it be referred back to the House of Delegates to be acted upon this afternoon and the House of Delegates, after acting upon it, would refer it back either to the general session Friday morning or to the Council. It is simply submitted here to bring it before the House of Delegates in proper form.

WILLIAM C. ANDERSON: There is a motion that this be adopted?

THE PRESIDENT: This is an amendment to the By-laws to be referred to the House of Delegates. It does not create anything, simply refers it to the House of Delegates, and then it will come back from the House of Delegates.

THE SECRETARY: An amendment to the By-laws must be presented at one General Session and acted upon at a subsequent General Session.

WILLIAM C. ANDERSON: That is the reason I contend the motion to adopt is not in order and I would therefore move it be received and take the usual course.

THE PRESIDENT: We adopt the motion but do not adopt the recommendation. I will correct it, that the motion be received and referred to the House of Delegates.

WILLIAM C. ANDERSON: I would like to move that the amendment to the By-laws be received and take the usual course, and the substance thereof be referred to the House of Delegates for discussion.

JEANOTT HOSTMANN: I second that.

THE PRESIDENT: Mr. Hostmann, will you accept that as a substitute for your motion?

JEANOTT HOSTMANN: Yes.

(Motion put before the House and carried.)

THE PRESIDENT: Any other business to be brought up by any member? If not, a motion to adjourn is now in order.

On motion duly made, seconded and carried the meeting then adjourned.

A CORRECTION OF DR. S. SOLIS COHEN'S ADDRESS.

Unfortunately the reporter of Dr. S. Solis Cohen's address, printed in September number, p. 911 *et seq.*, made a number of stenographic errors, which were printed as transcribed. This is deeply regretted. Fortunately, if it may be so stated, the most serious of these errors occurred in one paragraph, and this is reprinted here, as corrected. (The Editor was under the impression that the reporter had gone over the address with Doctor Cohen, but evidently he did not.)

Now I want to see pharmacy elevated to the rank of a profession, of a real profession. It was at one time a part of the medical profession, physicians gathering and compounding their own drugs. I remember there was an old physician and poet who lived in Spain in the year 1050, and who wrote this in one of his letters—he was apologizing to a friend for not having answered his letter sooner—and he said: " There are many who speak about me falsely in my praise and a multitude who believe all they say; wherefore I must occupy myself day and night, and even in those precious hours that belong neither to the day nor to the night, with the follies of medicine—whereof there is no healing." And there was another physician too, his contemporary, who, writing for the synagogue, a Prayer for Dew, put it in this way:

" On waving grain, on mead and wood
Let drops of blessing fall,
That all Thy children may have bread
And healing be for all."

That is, the produce of the field and the mead and the wood, vivified by the dew, not only gives us food but may be made by the pharmacist into healing for all men. (See paragraph 2, p. 915.)

H. C. CHRISTENSEN, CHICAGO.

CHARLES HOLZHAUER, NEWARK, N. J.

W. L. CLIFFE, PHILADELPHIA.

Nominees for President of American Pharmaceutical Association.

SCIENTIFIC SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

MINUTES OF THE FIRST SESSION.*

The first session of the Scientific Section was called to order in Hotel Chalfonte, Atlantic City, Thursday, September 7th, at 9:30 A.M., by Chairman W. L. Scoville.

The first order of business was the Chairman's Address, the subject of which was

PHARMACEUTICAL RESEARCH.

BY W. L. SCOVILLE, CHAIRMAN.

Research is to-day the popular topic for the chemist. Circumstances have brought it to the front, and men are seeing more clearly the latent possibilities of science, even in the abstract.

It is not my purpose to attempt to add to the oratory or the general argument, but to urge to concrete action pharmacy's part in the advance. Pharmacy has its own part to play, and its own responsibilities to shoulder.

Each branch of chemistry must hold up its end for its own good. A general attention to research makes it easier for all branches to push forward, but the laggard will not be carried very far or very long. All branches will profit by the efforts of the leaders, but only a coöperative spirit will preserve a place for any branch. Action is needed on all sides. Pharmacy must take up its problems and solve them, or it will ultimately cease to be regarded as a branch of chemistry. We cannot be a parasite in the chemical body and preserve our standing.

Talking or reading about chemical achievements will not get us very far unless we are stirred to achievement ourselves. We may profit to a considerable extent by the achievements of allied branches of science, but we can secure lastingrecognition only by our own attainments.

Research is preparedness. It is the foundation upon which achievement is built. It thus depends upon knowledge, training and the atmosphere of prescience. For this we must look mainly to our colleges and the scientific laboratories of the larger manufacturing houses. The atmosphere of retail pharmacy is not conducive to research, and we can scarcely expect to change that atmosphere very materially. But we can reasonably look to our hundred or so schools of pharmacy for a larger measure of pharmaceutical research than we are now receiving. They must lead in professional matters, and in the spirit of research. For we are Pharmacopœia makers and National Formulary constructors as well as commercialists. These are the works by which pharmacy as a profession is judged.

Pharmacy has done creditable work on these books, but there still exist faults in them which require research to correct. We cannot leave all the problems to the revision committees, for some of the problems require more time and attention than these committees can give to them. Progress depends upon preparation, and is in proportion to that preparation.

The present revisions, just issued, show some defects which are due to just this lack of preparation by pharmacy as a whole. The revision committees did much research of the briefer type, but they were unable to investigate the more fundamental problems.

For instance, the Elixir of the Phosphates of Iron, Quinine and Strychnine has been a leading pharmaceutical problem for a generation. The preceding issues of the PHARMACOPŒIA and NATIONAL FORMULARY included the best formulas for it that pharmacy could devise. Neither was satisfactory, but the problem was left to the revision committees. The result is that the preparation has been entirely dropped because the research which is needed to produce a satisfactory formula has not been done.

Soluble Phosphate of Iron, which is the troublesome factor, is but little understood.

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* Papers with discussions of the subjects will be printed apart from the minutes; hence only the title will be mentioned in the minutes.

With the other scale salts of iron, it has been accepted without being understood, and when the knowledge became necessary, the preparation had to suffer. It is probable that a knowledge of the constitution of the scale salts of iron (in this case the soluble ferric phosphate) would solve the problem of this Elixir. Professor Stevens a few years ago started a study of these iron compounds, but did not finish it. It is not a simple problem, but calls for a knowledge of the most modern physico-chemical theories, and a skill in research that is beyond the ken of most pharmaceutical chemists. It embodies a study of iron as an acidic body as well as a base, and it includes a relation of both the iron and its compound to other bases and acids. Such a study would not merely solve the problem of this particular Elixir, but would mean more perfect and efficient iron preparations of many kinds. It would solve many problems at once. But it is no simple or easy problem, and it needs the best skill that can be secured for its solution.

Some other problems which need attention may be mentioned, to make more specific the need for pharmaceutical research.

With the purpose of reducing the number of astringent preparations in the Pharmacopœia, Tincture of Nutgall was dropped. Apparently the sub-committee which recommended this deletion judged the astringent preparations by their palatability and therapeutic usefulness, but found no information concerning their stability. But there is reason for believing that Tincture of Nutgall is the most stable, and therefore the most reliable of the astringent preparations. It was entitled to consideration for this alone, but failed to receive such regard. Much work has been done on the stability of alkaloidal preparations, and similar work is needed on the astringent preparations, particularly as it is known that some of the latter are notoriously inconstant. More, perhaps, than any other class of preparations, do the astringents depend upon the character of the solvent, or menstruum, for stability. These do not advertise internal changes by precipitation or other obvious physical change, but may remain perfectly clear and presentable and yet lose their value as astringents. Furthermore, there are a number of drugs which contain astringent principles, but are not employed as astringents, and in which the astringent body is troublesome in preparations. A systematic study of the astringent principles in drugs would go far toward producing more reliable as well as more presentable preparations.

Similarly some of the glucosidal preparations need to be studied for stability and the influence of the menstruum upon them. The recent increase in the alcoholic strength of Tincture of Digitalis is but an instance of this need. The Tincture of Digitalis of the U. S. P. VIII was pharmaceutically satisfactory but not therapeutically reliable. The question is still open, and may be applied to preparations of strophanthus as well.

Ergot has been much studied chemically but not pharmaceutically. Menstrua must have their influence on the stability of ergot preparations, but physical appearance has been the main criterion thus far.

Pepsin is another drug which is very susceptible to other bodies, particularly in solution. The National Formulary IV has twelve different liquid preparations of pepsin, none of which has been very closely studied for therapeutic permanency. Chemists have informed us somewhat of the influence of different acids and chemicals upon the activity of pepsin, but little use has been made of such knowledge pharmaceutically. Yet not only do the different acids affect the activity of pepsin, but the proportions of acid to obtain the greatest stability need to be learned. Likewise the influence of alcohol, glycerin, and perhaps sugar, needs to be studied. We really know but little about the value of official pepsin preparations after they are a few months old.

Cantharides has shown some striking peculiarities as regards solvents. It appears to be an extremely difficult drug to extract, and the British Pharmacopœia has gone so far as to abolish all preparations of Cantharides and substitute preparations of cantharidin therefor. But the U. S. P. still puts faith in cantharides preparations although most of the evidence is against their reliability. The next Revision Committee should have positive evidence of reliable methods of extraction and of practical solvents for this drug, on which it can base its formulas. The appearance of the preparation is not a reliable criterion of its value, and the fact that the Pharmacopœia has no assay method or standard for any cantharidal preparation, although the drug itself is standardized, is significant.

Some drugs are under a cloud without sufficient warrant, and the truth about them should be known. Indian Podophyllum, *Podophyllum Emodi,* is an instance. This drug appeared in the English market some 25 years or so ago. A prominent English pharmacist made a hasty and somewhat superficial test of it and condemned it. His standing carried sufficient weight to make the prejudice stand for a generation. Yet most of the work done since then tends to make this species of podophyllum superior to the one still recognized exclusively in the U. S. P., and under Resin of Podophyllum, the resin of P. Emodi is distinctly outlawed. Yet the British Pharmacopœia has recognized the two species as equal. The Indian drug is more economical, and the best evidence points to its being more active also. Economy is worth considering, even in pharmacy and medicine.

A similar condition exists with regard to Brazilian Jalap—the tuber of *Pipsostagia pisonis,* which contains twice to three times as much resin as the official Jalap, and the resins are stated to be nearly identical chemically. The Pharmacopœia wants to recognize the best, and should know the status of this Brazilian drug before another revision.

And we might ask whether Mexican Scammony is really inferior to the Aleppo variety? Or what therapeutic differences, aside from strength, there are between *Hyoscyamus Muticus* and *H. Niger?* Prejudices die hard, even in scientific circles, but they are less excusable in science than outside.

Our Professor L. E. Sayre has done some excellent work on the constituents of Gelsemium, and it should require but little more investigation to establish a reliable assay method for the drug and its preparations. Indeed, manufacturers are already standardizing them by assay, but the Pharmacopœia has not yet seen fit to follow.

Lobelia and Veratrum Viride are also standardized commercially, but the Pharmacopœia still withholds its sanction. Is it not wise to assume that results obtained by common methods of assay are necessarily indicative of the value of these preparations? But, on the other hand, it is no more scientific to assume that they are not. If the next Pharmacopœia does not standardize them, we should know good reasons why, based upon an investigation.

Sanguinaria is another drug of peculiar interest and established value. Its alkaloid seems to be strangely affected by the amount of acid present, as well as by the character of the acid. Apparently preparations of this drug deteriorate on standing, but the amount of acid employed may contradict this suggestion. In other words, a very liberal use of acid may not show any deterioration, whereas a moderate use will. No other alkaloidal drug acts the same way toward acids. Furthermore, preparations of Sanguinaria seem to be more stable if made strongly acid.

The relation of acids to the alkaloids of Sanguinaria is very interesting but little studied. This may prove, on investigation, to have a simple explanation, or it may be a complex study.

Other examples of the need of research might be cited, but enough has been said to show that pharmaceutical research is a practical need. There are problems enough, but workers are not developed for them.

Pharmacy must give as well as take, and it probably will find that the more it gives to science the more it will be able to receive from science. Capacity grows with usefulness.

I recommend therefore that a Committee on Research be established by the Association for the encouragement of the pharmaceutical research. Such a committee can point out the need of investigation in certain lines, can secure workers to undertake the solutions of definite problems and can keep before the colleges and those engaged in scientific work the needs and value of solving such problems.

Some of these problems are likely to require long experimentation.

Some schools may be persuaded to specialize on certain lines.

This is the situation at present in some technical studies. Thus the University of Maine has attracted attention by her studies on paper-making, Ohio State University by investigations on coal, Illinois University by systematic work on the economic uses of fuel, Minnesota University by researches in pine products, etc.

Already some of our pharmaceutical colleges are specializing. The Universities of Minnesota and Wisconsin on drug-culture, and Professor Sayre has drawn attention to the University of Kansas by his drug analyses. Such specializing is a credit to the institution because it accomplishes something definite.

A Committee on Research can do good work both by securing workers for definite problems and by stimulating the development of special lines of work in some of the teaching institutions. Some investigations will cover a period of years, and the committee should be of a permanent character. Appointment should be for a period of not less than five years each, after the committee has become established, one member perhaps finishing his term each year, but subject to reappointment if his interest warrants. The committee should also represent, in part at least, the Conference of Pharmaceutical Faculties, since its main work will be with the pharmaceutical colleges.

If such a committee can stimulate research in our colleges, and secure the working out of problems such as has been suggested, it will accomplish much for American pharmacy.

DETROIT, August, 1916.

PHILIP ASHER: I move that the address of Chairman W. L. Scoville be received and a committee appointed to take up the recommendations made therein and to report at the last session of this Section.

Seconded. Motion carried.

A committee consisting of Messrs. C. E. Vanderkleed, Philip Asher and C. B. Jordan was appointed. (This committee reported during the last session, but for convenient reference the report is printed here. The recommendations of the committee carried, except the one restricting the personnel of the Committee on Research.)

REPORT OF COMMITTEE ON CHAIRMAN'S ADDRESS.

Your Committee begs to report that it unanimously favors the reommendation of Chairman Scoville that a Committee on Research be established, and in accordance therewith recommends the following:

1. That a Committee on Research be established by the Scientific Section.
2. That this Committee consist of five members who shall serve respectively for 5, 4, 3, 2 and 1 year, and that each succeeding member shall serve for 5 years.
3. That members of this Committee shall be elected by the Section.
4. That at least two members of the Committee on Research shall be men or women engaged in teaching in a school or schools having membership in the American Conference of Pharmaceutical Faculties.
5. That the By-laws of this Section be modified, if necessary, in accordance with these recommendations.

Respectfully submitted,

CHAS. E. VANDERKLEED, *Chairman.*
C. B. JORDAN.
PHILIP ASHER.

ATLANTIC CITY, N. J., September 8, 1916.

DISCUSSIONS OF THE CHAIRMAN'S ADDRESS.

C. B. LOWE: I was struck with the mention of one drug—Podophyllum Emodi, the Indian. If you will take the trouble to look this matter up, you will find that an analysis shows it to contain 12 percent of resin, but that resin is distinctly weaker than the official Podophyllin of the U. S. Pharmacopœia. This, I believe, we have unwisely relegated to the rear, when it is, perhaps, entitled to be used, and I think that was a good thing to be brought out. It was of considerable interest to me.

R. A. LYMAN: I want to say a word about the Chairman's address. It is, in a way, a repetition of what I said before the Conference down in Philadelphia, and I hope that those present who heard me will bear with me for a moment or two.

I am heartily in sympathy with the suggestion Chairman Scoville makes as to the appointment of a Committee on Research. In studying the problem for a great many years, and in talking the matter over with some of our most prominent doctors, I have come to the conclusion that the thing we need most of all, at the present time in pharmacy, is the production of new material. In the last few years we have been trying to make a profession of pharmacy by legislation, and you know how the senators from Nebraska felt about this matter, and no doubt the senators from other states felt the same way.

We can never make a profession of pharmacy by legislation, by teaching men and women how to carry on a manipulation of the Pharmacopœia. I think there is no other way to make pharmacy a profession than by those who are in a position to do so, those who are trained to do so, to engage in research which concerns pharmacy, and when we do that we put pharmacy on a scientific basis and make it a profession, and I am heartily in sympathy with this part of the report and hope that some action will be taken toward the establishment of such a committee.

A. W. LINTON: There is more or less interest in pharmacy and the status of pharmacy and a good deal of inquiry as to whether pharmacy deserves the standing of a profession and whether schools of pharmacy deserve to be ranked with other professional schools or not. There is a good deal of doubt along these lines. One of the questions asked was whether the pharmacists are doing any research work. Are they doing any original work? Anything new? What are the problems they are working on; and where can we find the records of what they are doing? They are asking these questions. They want to know. They are not thoroughly familiar with what we are doing. They have not heard very much, and some think we are not doing anything along these lines, and I think this is the keynote we ought to sound.

W. F. RUDD: In the past few months I have had a great deal of correspondence with the Carnegie Foundation on Teaching relative to this question. Dr. Pritchard wrote me and said there is one thing that ought to be decided, and the pharmacists alone can decide that—namely, whether or not we were really professional people or business people, and when that decision was made by the pharmacists themselves, Dr. Pritchard, speaking for the Foundation, said that there was a good deal of work they had for us.

VIRGIL COBLENTZ: Pharmacy will never be classed among the sciences if we, ourselves, do not place it there. It is up to us to do that, and it is up to us to take up this line of research and do it carefully and conscientiously and create a place for ourselves.

But, we are not going to reach this point by legislation. We have to show what we can do.

The following were then appointed as Committee on Nominations: H. Engelhardt, E. A. Ruddiman, John G. Godding.

R. A. LYMAN: I move that this Committee be allowed to make its report at the next meeting.

Seconded. Motion carried.

The first paper of the program was entitled *A Study in Adsorption,* by J. U. Lloyd, accompanied by practical experiments.

It was thereupon moved by C. E. Vanderkleed that the paper be accepted and that it take the usual course. Seconded.

A rising vote of thanks was given Professor Lloyd for his paper, who spoke as follows:

Gentlemen, when I look around at the faces, it seems to me that I am speaking to others of whom I once was a part. In the vacant chairs I see others that none of you see, and I hear voices in the discussions that none of you hear, and my heart-strings are pulled, and it won't be many years until some man stands in this room and looks around as I look around now and will see a vacant chair here. If you think then, as I do now of them, you will think then of me.

REPORT OF THE COMMITTEE ON EBERT PRIZE.

The Committee on Ebert Prize respectfully report that the members have severally and individually considered the papers presented at the 1915 meeting and have independently and unanimously come to the conclusion that the award should be made to Professor John Uri Lloyd for his epoch-making discovery of the adsorption powers of hydrated siliceous earths.

(Signed) CHARLES H. LAWALL,
ROBERT P. FISCHELIS,
M. R. LAWALL.

The Secretary moves that the report be received and adopted. Seconded. Motion carried.

J. U. LLOYD: Mr. Chairman, nobody knows how I appreciate this. I had no thought of anything in that line. My paper of last year was simply a statement of a fact. There was nothing in it. It is something that anyone ought to have accomplished and I gave it to the Society.

I accept this prize joyfully, because, young people, it will give so much pleasure to those I truly love. This is the fourth Ebert prize, and not one of them did I think I was in the list for, and I truly thank you.

The next paper was entitled *Physical Phenomena Relating to Solution and Crystallization,* by H. J. Novack.

Moved that the paper be received and referred to the Publication Committee. Seconded.—Motion carried and the paper discussed as follows (the paper was published in September, 1916, issue of the JOURNAL A. PH. A., which see):

H. L. HARRIS: I would like to say a word in reference to the solubility of boric acid. About thirty days ago a doctor in Chicago recommended a ten percent solution of boric acid for washing of the nasal passages to prevent anterior poliomyelitis. I asked him how a ten percent solution could be made and he replied that it could be made in water at a temperature of 125°. I wrote him that water at that temperature would be too hot for a baby's nostrils.

In the July issue of the *American Medicine* they had an article copied from the *Midland Druggist* showing how to make a boric acid solution by putting it in a mortar, adding water and grinding it up, putting in more water and grinding it, and then putting the powder in a bottle and agitating it. I would like to add, in reference to boric acid solution, that there is now to be had a granulated form of boric acid that is the most soluble form of any heretofore placed on the market.

C. P. WIMMER: I have listened with a great deal of interest to Dr. Novack's paper. What he says here is nothing more than a substantiation of what I said in another discussion with reference to the transition states that substances go through in their formation.

He finds, on looking at them under a microscope, that particles form—first the nebula, and this shapes itself into fine particles, and Dr. Novack calls these "primary crystalline particles." These, to my mind, are nothing more than colloids, and Mr. Novack characterizes these particles very nicely. He says that they have the power of attraction and repulsion and continue to increase in size. We know that they have definite electric charges—negative and positive as the case may be—and so on, and he has shown us how the transitions from the colloidal state into the crystalline state go on. As the particles increase in size the movement becomes more sluggish and finally stops altogether and the crystal is formed.

I think the paper is a very interesting one to the colloidal chemist.

The following papers were then presented and discussed: Some of the Results of the Harrison Anti-Narcotic Law, by H. C. Wood, Jr. A Constant Temperature Bath for Maintaining Temperatures Lower Than That of the Room, by Paul S. Pittenger, and another by the same author on Multiple Operating Table Combined with Kymograph Case for Blood-Pressure Experiments.

REPORT OF COMMITTEE ON QUALITY OF MEDICINAL PRODUCTS, SEPTEMBER, 1916.

The members of the above-named committee are: Edgar L. Patch, Lyman F. Kebler, H. H. Rusby and H. Engelhardt. Dr. H. H. Rusby, in presenting the report and commenting thereon, said that the first two or three pages of the report should have been credited to the Proceedings of the New York State Pharmaceutical Association, and reference to that fact should be made when the report is published.

So far as these samples are concerned they are simply a few that I was able to get ready before I left home. They consist of drugs that have been adulterated and drugs offered at the port of New York during the past year.

I commend these samples to you as a practical example of what the drug law has done for materia medica of the country.

It was moved and seconded that the report be accepted and take the usual course.

Motion carried.

A. R. L. DOHME: Dr. Rusby, does this same condition apply to all ports as it does to New York?

H. H. RUSBY: I believe that some of these drugs do get in through other ports, but a system prevails in the Department of Agriculture, by which the man in charge of the work at one of these ports is supposed to send in his samples, when he is in doubt, to the central office in Washington at the Bureau of Chemistry, and I believe this is done. I believe that some of these things do get in at the other ports, but not to any great extent.

Motion carried.

A motion to adjourn was then made, seconded and carried.

SECOND SESSION.

Scientific Section, Thursday, September 7, 1916.

The second session of the Scientific Section was called to order by Chairman Scoville at 2.30 P.M. on Thursday, September 7, 1916.

The Committee on Nominations reported on nominees for the Section as follows: for chairman, J. L. Turner, E. L. Newcomb; for first vice-chairman, P. S. Pittenger, B. L. Murray; for second vice-chairman, A. W. Linton, W. R. White; for secretary, W. F. Rudd, W. W. Stockberger.

A paper on *Vegetable Taxonomy,* by O. A. Wall, was then presented. This was printed in September number, JOURNAL A. PH. A.

The next subject was *Drug Plant Culture in 1916,* by W. W. Stockberger. This was discussed and referred for publication, and likewise the following: The Alkaloids of Amaryllis Belladonna, by F. B. Kilmer; The Culture of Belladonna, Illustrated with Specimens and Lantern Slides, by John A. Borneman; The Collection of Material for the Clinical Laboratory, by J. Atlee Dean; The Assay Methods and Purity Requirements of the Pharmacopœia and National Formulary, by M. I. Wilbert; Corn Oil and Its Hydrogenation Product for Medicinal Use, by D. H. Lackey and L. E. Sayre; Analysis of the Seeds of Gymnocladus Canadensis (Kentucky Coffee-tree), by G. N. Watson and L. E. Sayre; Polarized Light in Vegetable Histology, by C. W. Ballard; The Physiological Standardization of Cannabis, by W. A. Pearson; The Variability of Strophanthin with Particular Reference to Ouabain, by L. W. Rowe; A Criticism of the Biologic Methods for the Standardization of Digitalis with a Suggestion for a New Method, by W. H. Ziegler; Chaparro Amargosa, by Henry Kraemer and Chalmers J. Zufall; Peyote

Worship, by C. Coulson Smith; On the Detection of Mould in Drugs, Foods and Spices with Special Reference to a Specific Stain, by Arno Viehoever; Autochrome Photographs of Medicinal Plants, by E. L. Newcomb and Henry Morris.

It was intended to project the photographs in the presentation of the last subject, but as no suitable apparatus was furnished, the photographs were placed on exhibition instead.

The meeting was adjourned.

THIRD SESSION.

Chairman Scoville called the third session of the Scientific Section to order at 9.45 A.M., Friday, September 8, 1916. The reading of papers was continued, the first number of the program being A Medicinal Comparison of Castor Oil and Mineral Oil, by R. F. McDonald. After considerable discussion the paper was referred.

The following papers were then read and discussed: Diagnostic Reagents, by F. E. Stewart; Hexamethyleneamine, by E. V. Howell and E. V. Keyser; A Rapid Accurate Method for Determining Organically and Inorganically Combined Iodine, by J. Paul Snyder and W. J. Thompson; Chemical Monographs and New Chemicals in U.S.P. IX, by Otto Raubenheimer; Sulphurous Acid—Its Extemporaneous Preparation, by Otto Raubenheimer; Preliminary Notes on the Value of Beta-iminazolyl-ethylamine hydrochloride as a Standard for Testing Pituitary Extracts, by Paul S. Pittenger and C. E. Vanderkleed; Laboratory Notes on Fowler's Solution, Spirit of Nitrous Ether and By-alkaloids in Quinine Sulphate, by H. Engelhardt and O. E. Winters; The Adulteration of White Beeswax, by K. F. Ehmann; Manna, A Brief Study of Some Commercial Samples, by Charles H. LaWall and Leroy Forman; A New Digestant, by W. A. Konantz.

The following papers were presented in abstract form and will be sent direct to the editor of the JOURNAL OF THE A. PH. A.

Roland E. Kremers and Edward Kremers: The Oil of Pinus Sabiniana.

A report on the distillation of the oil of the Digger's pine from its oleoresin preliminary to subsequent reports on the revision of the physical constants of heptane, the chlorination of this hydrocarbon of this oil found only in traces.

L. J. Ostlund and Edward Kremers: The Oleoresin and Oil of Pinus Jeffreyi.

A report on the distillation of the oil of Jeffrey pine from the oleoresin, likewise preliminary to subsequent reports on the revision of the physical constants of heptane, the chlorination of this hydrocarbon and the study of the oxygenated constituents found in the higher fractions.

L. J. Ostlund and Edward Kremers: The Cones of Pinus Sabiniana.

Although the heptane from Digger's pine has attracted attention, the seeds which are said to have served the Digger Indians as food—hence the common name of tree—do not appear to have been investigated even in a preliminary manner. The seeds have a pleasant, bland taste and yield a fatty oil upon expression and extraction. The cones exude an oleoresin quite different in appearance from that obtained by boxing the trunk of the trees. The volatile oil from the fresh cones was also distilled.

Norbert Mueller and Edward Kremers: The Apparent and Real Ash Content of Digitalis.

Attention is called to the observation that the apparent ash content of foxglove leaves may rise as high as twenty-five percent and more and that this may be due to adherence of fine particles of soil to the rough surface of the leaf, even after more than ordinary precautions have been taken to remove such foreign matter. It is also pointed out that a choice drug may be obtained by mailing the crude drug and reserving the No. 20 powder for infusions. The soil accumulates in the finer powders and can be rejected.

The report of the Committee on the Chairman's Address was then presented. (This will be found following the Chairman's Address, First Session.)

It was moved, seconded and carried that the Committee on Research to be appointed should take up the matter of amendment of the By-laws wherein it should be provided that this should be a standing committee in accordance with the suggestions of Chairman W. L. Scoville (see Chairman's Address).

The nominations for this committee resulted as follows: W. L. Scoville, C. E. Vanderkleed, William Mansfield, Arno Viehoever and C. H. Lawall. These nominees were unanimously elected by the Section.

The election of officers of the Section for the ensuing year resulted as follows: Chairman, J. L. Turner; first vice-chairman, B. L. Murray; second vice-chairman, A. W. Linton; secretary, W. W. Stockberger.

Chairman W. L. Scoville thanked the Section for the courtesy and assistance rendered him during the year and then entertained a motion to adjourn, which was carried.

P. H. UTECH, MEADVILLE, PA.
Chairman, Section on Commercial Interests.

LEONARD SELTZER, DETROIT, MICH.
First Vice-President, American Pharmaceutical Association.

PARTS I AND II. A CONTINUED STUDY IN ADSORPTION.*

Illustrated by Experiments.

PART III. KRYPTONINE.

JOHN URI LLOYD, PHAR. M.

PART I.

With unusual interest and satisfaction have I studied the paper contributed by Professor Wilbur L. Scoville, of Detroit, to the 1915 meeting of the American Pharmaceutical Association, titled, *Some Experiments in Filtration.* This experimentation concerns the influences of such insoluble, amorphous materials as paper pulp, purified talc, infusorial earth and fullers' earth, the elective affinities of these materials being accurately described in connection with the following alkaloids and alkaloidal salts: Quinine Hydrochloride, Strychnine Sulphate, Caffeine, Morphine Sulphate, Atropine Sulphate, and Acetanilid.[2]

Need it be said that this paper was to me of exceeding interest, by reason of the fact that many radiating phases of the problem presented by Professor Scoville have, as is known to our older members, taken much of my thought and care for the past four decades. And in this connection it is well to bear in mind that most insoluble substances, such as gums, resins, plant tissues, jellies, etc., possess in themselves marked adhesive affinities for elective materials, this attraction being often very pronounced when in contact with the proper elective substances.

The present paper should in my opinion be considered as a continuation of a series of contributions, five in number, offered by me to this Association, 1879–1885, under the title, *Precipitates in Fluid Extracts,* connecting therewith the recent results of Professor Scoville. In the papers named, thought was constantly directed to physical phenomena and colloidal influences, such as adsorption, adhesion, capillarity, and the attributes of so-called "inert" substances, employed in, or produced by, pharmaceutical manipulations. Thus were included phenomena connected with menstrua, solvents, materials dissolved and materials precipitated, the effort being to specialize some of the actions of structureless bodies that apparently lie outside the domain of atomic chemistry, and which involve physical adhesions, as well as structural rearrangements, often very complicated and not explainable by established chemical processes.

The title of that series of papers (suspended in 1885, although experimentation in connected lines has never been by me relaxed) did not fully comprise their contents, but yet it granted me the privilege of intruding into pure pharmacy a line of investigations that otherwise, in part at least, might seem to have a more congenial home elsewhere.[3]

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* Contributed to the American Pharmaceutical Association, 1916.[1]

[1] Continued from *Proceedings of the American Pharmaceutical Association Meeting* at Pittsburgh, Pennsylvania, in 1885.

[2] At the 1915 meeting of this Association in San Francisco, Professor Scoville's paper led to the adoption of a motion asking "That the Scientific Section take the matter of adsorption in filtration under consideration, and solicit papers on the subject."

[3] While no hostility towards these studies was exhibited by any one, it became evident to me that further publication of my apparently fruitless explorations would be an imposition

As perhaps the majority of our members present are unfamiliar with those contributions of the olden time, and may not have access to the *Proceedings* carrying them, a brief summary of the topics then considered, connecting them with the present subject, is proper as an introduction to what I wish to present to-day.[4]

The first paper of that series, 1879, concerns phenomena connected with the art of percolation, the underlying thought being the study of *contact action,* whereby so-called "solution" of plant textures takes place. This includes such phases of the phenomena of solution as the influence of currents, temperature, maceration, maceration with expression, maceration in connection with percolation, influence of the percolator's diameter, the mathematical laws governing the process, the effect of temperature on percolation, and *practical application versus theoretical deductions.* The paper was illustrated with tables and figures.

The next, 1881, considers the precipitates that form in such percolates as fluidextracts, the thought being carried more directly toward what I then denominated "mass action." Let us quote:

> The result of my observations and study of precipitates has convinced me that the larger part of the permanent sediments that form in most of our fluidextracts arises from a cause heretofore unconsidered. They are the result of neither a decrease of temperature, of oxidation, nor of chemical change. They follow physical rather than chemical laws. To investigate them, we must depart from the exclusive department of the chemist and pharmacist, and consider such forces as diffusion, the motions of currents, and the influence of various solvents. Perhaps the remarks I shall now venture to record, may open to others a new line of thought, a subject worthy of research.

This paper considers the problems of oxidation, change of solvent power of menstruum due to evaporation, precipitation caused by change of temperature, and the often overlooked influence of light and physical conditions. It led to the announcement that a plant percolate is *not a simple solution* but a *complex structure,* in which certain substances are dissolved to the point of saturation, and that separations of both liquids and content follows from various causes, the solvent power of the mother solution being altered as such precipitates or separates are successively formed. Thus, a percolate being an intercollection of interlocked solutions, the separation from it, of any dissolved material whatever, alters its solvent power, the change being followed by a resulting strain upon some other substance that, separating as a precipitate, changes the solvent power of the new

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on the Society. This, too, notwithstanding the urgent request for their continuation by Dr. Charles Rice, who in discussion, in 1884, said: "I think Mr. Lloyd is on the track of some new discoveries in science that will prove to be of importance and in the end will explain phenomena hitherto little understood. I am sure this is not the end. He seems to have crept over into other channels, and I hope he will give us these, next year." Professor Maisch remarked: "Perhaps every one of us has noticed some of these little things, but our minds were not inquisitive enough to endeavor to solve the problem." To me, this line of research became increasingly interesting, and my experiments were never relinquished, although the results were intruded only on personal friends, who honored my laboratory with their visits. To this I will add that my opinion is now, as then, that pharmaceutical manipulations are dominated by *mass actions,* colloidal phenomena, and such border-land force exhibitions as must take the thought of physicists in the future. In pharmacy, as I have long argued, lies a great, rich field, as yet undeveloped.

[4] When it is considered that the entire subject concerned phenomena and experiments covering many phases of manipulative experiments that required nearly one hundred pages of text for description, it will be seen that this Summary is but a restricted fragment.

menstruum, and may thus produce other precipitates. In like manner new solvents are produced. Twelve illustrative experiments were introduced.

The 1882 contribution aimed to show that although a *theoretical equilibrium* might in time result in such a liquid, phenomena already considered (1881) in connection with temperature changes rendered impossible in such complexities any permanent equilibrium between solvent and content. The liquid tends even to separate into distinct zones, each segment having an individuality of its own and, as temperature changes, a circulation within itself. This tends to carry liquid substances of the heavy, lower strata upward, and those of the lighter, upper strata downward, each segment holding some substances on the solvent strain, ready to separate as precipitates, almost on vibration.[5] Thus, at the dividing lines (or planes), separating the various sections of such a solution, precipitation is likely to follow, owing to the complicated solution strains at those points. Precipitates thus formed in one stratum may settle into another stratum having a different solvent action, and may then redissolve. Or, they may continue to descend until, as a sediment, they rest upon the bottom of the container. In like manner, precipitates of oil-bearing bodies lighter than the liquid may start upward and be carried to the surface, forming a skin upon the top of the liquid, or, adhering to the container's side at the surface of the liquid, form a line of deposit. Through such changing influences, the entire content of such a complex liquid structure is resultingly active, and precipitation and resolution may be continuous. Adhesion phenomena accompany all changes wherein such precipitates occur. Let us quote:

> Thus we find that from natural causes precipitation in fluidextracts made by percolation may continue indefinitely, that these precipitates may continue to increase or decrease periodically, and that there is little chance for absolute rest.

The 1883 paper considers the surface creeping-deposits, mentioned in 1882, that sometimes form above the top of a liquid. It was also shown, by experimental illustrations, that *mixtures* of soluble salts acted as capillary separators on evaporation of their solvent, even though that solvent be pure water. For example, it is stated that:

> A mixture made of several perfectly soluble salts may be dissolved and then evaporated, when it will often be found that each salt has selected a location for itself, there being a fair line of demarcation between the zones.

The summary is as follows:

> Hence we find that by a process which may be compared with *dialysis without a membrane,* the bromide of ammonium had purified itself from the chloride of sodium, until only about two-thirds of one percent of the latter salt remained.

The 1884 contribution, continuing these studies, is devoted entirely to capillary phenomena. By illustrations it is shown that soluble crystalline salts, as well as colloidal substances, can be thus separated from their solvents, bibulous paper possessing the power of producing separations difficult to explain other than by physics. Inasmuch as the writer was at that time deeply engaged in the study of structureless bodies, now known as colloidal, and was constantly meeting problems that must soon become the subject of general thought, namely, *the*

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[5] The influence of an electrical vibrator on colloidal solutions and precipitating processes was investigated by me in 1914.—J. U. L.

separation of uncrystallizable substances from each other, the following sentence is pertinent:

> Perhaps the analytical chemist will find some food for consideration, as it seems reasonable to suppose that the principle involved may be of practical value in the separation of certain colloidal bodies one from another. Then, too, it may be found advisable to *evade the process of filtration,* if possible, where accurate results are desired.

Many experiments were made to illustrate the action of bibulous paper, these being summarized as follows:

> In looking at the phenomena as presented, it will be seen that we may sum the matter up as follows:
>
> 1. The bibulous paper absorbs the liquid and carries it to a certain height, about as it exists in the vessel.
> 2. At a point above the surface of the liquid, determined by the texture of the paper and concentration of the solution, the iron salt ceases to pass upward[6] as rapidly as the water or other substances held in solution by the water.
> 3. The liquids then separate, and the *colorless* liquid is then drawn (or thrust), through the solution of iron, without carrying a trace of ferric sulphate beyond the line of division.

No attempt was made in that paper to argue theoretically concerning the phenomenon, as shown by the following sentence:

> We do not design in this paper to enter into a theoretical argument regarding the *causes* for the phenomenon herein presented, the aim being simply to present the experiments.

The result of the investigation is summed up as follows:

> The facts, then, to be presented in this paper are:
>
> 1. Liquids can be separated from solids held in solution, without evaporating the liquid, or precipitating the solid in an insoluble condition.
> 2. Liquids can be separated from each other.
> 3. Chemical combinations, even, can be broken without calling upon such recognized dissociating powers as high or low temperatures, or the action of reagents.
> 4. This dissociating force has been overlooked in many places where, perhaps, it might be useful. It may be an unknown factor, leading to discrepancies in delicate analytical work that involves frequent filtration. There are other points of interest that we hope to consider in the future.

The 1885 contribution directly concerns the adsorptive powers of *selected, inert substances,* on associated constituents in liquids containing mixed principles in solution, as obtained from plants, for example, alkaloidal solutions and their associates. It is introduced as follows:

> The influence of capillarity upon certain solutions during their passage through bibulous paper having been illustrated in the immediately preceding portion of this communication (presented in 1884), I am led in continuation to introduce another phase of the subject.

The dominating idea of the problem thus presented is indicated as follows:

> *Paper Pulp Will Absorb Plant Constituents and Separate Them from Solutions.* In reviewing the phenomena presented in that paper (1884), the following query presents itself: Admitting that the passing of a solution through a column of fibrous paper by capillarity will separate many substances from the liquid in the *beginning* of its passage, will this effect follow the *saturation* of a passive capillary body, submerged in a solution?

This was illustrated by a number of experiments with alkaloids and alkaloidal salts, the results being not altogether in accord. The following summary was offered:

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[6] We use the term "upward" to correspond with this line of experiments. The same phenomenon is presented when the paper is horizontal, or inclined, if capillary attraction, only, carries the liquid forward.

1. The dipping of substances like filter paper into such solutions as are here considered may be attended by a separation of dissolved matters.
2. Liquids expressed from such materials do not necessarily contain the proportion of dissolved matter that was held by the original solution.
3. Like amounts of the expressed liquid may vary greatly in composition.

It was further shown that:

Hydro-alcoholic plant preparations allowed to stand undisturbed are prone to alterations that increase the alcoholic content of the surface, as contrasted with the bottom. This phenomenon is due to a complication of causes, connected with the physical action of insoluble materials and the action of circulating media, as previously cited.

To this was added:

These investigations are purely artificial, and I am led to them from disturbing results obtained in practical manipulation. They were made to aid me to study out certain inconsistencies in my work, that could not be accounted for under generally accepted theories regarding the exhaustion of drugs by percolation, or maceration and expression. In the act of exhausting most plants, we have soluble bodies to separate from wood fibre and other substances that resemble filter paper and wood pulp, as well as insoluble mineral principles. We also have to consider in the liquid product the *physical* or *mass* attraction that may exist between chemically inert matters precipitated from solutions, and active constituents of the liquid. It is also true that, as pharmacists, we often use filter paper, paper pulp, felt, phosphate of calcium, carbonate of magnesium, and perhaps other *presumably passive bodies,* to aid in filtration or the clarification of liquids. I hope soon to bring before you a phase of this subject, illustrating the influences apparently passive plant constituents exert on each other.[7]

In the discussion of this paper, Professor Prescott's remarks well illustrate his views of the importance of the phenomena presented in the direction of exact chemical analyses, as he saw the problem thirty-one years ago. Let us reproduce these:

Mr. Prescott: I wish to say a word on this subject. I think this series of papers has been of great value. This is, I believe, the fifth year in which the Association has received a paper from Professor Lloyd on this subject. I think it is a notable example of the fact that true research is reported from the field of applied science, as well as that of pure science. The reflection is often cast upon us by those engaged in "pure science," that we appropriate the results of investigations made in pure science, giving little credit for them, unless they bear upon the industries of life. The public at large reap the benefits, they say, while those engaged in the investigations get little reward. While that is true, it is equally true that those who are engaged upon investigations in pure science often fail to give credit for the benefits directly due to the workers in applied sciences. Now, it is not true that those who serve the public in technical pursuits contribute nothing to the advance of science in general. As an example, Professor Lloyd says he commenced his investigations in order to avoid certain difficulties in practical work, and he has opened up a field which is of the utmost importance in pure molecular science. It has been asked whether we should refer Professor Lloyd's results to chemical action within molecules, or to those forces between molecules which may be classed under physical action. Now, we do not know a great deal about these two modes of force, or their essential nature; but I think we know this much, that there is no sharp line of demarcation between the *chemical* action *within* the molecules and the *physical* action *between* the molecules. They grade off into each other. We must look out for the interference of *adhesion* in a great many operations called chemical. The interference of adhesion is a cause of error, very many times, when we do not look for it. Now take the matter of opium assay. We use a stated quantity of the filtrate as an aliquot part of the entire liquid. If the adhesive power of the filter is sufficient to absorb and hold certain dissolved substances of the liquid, then your filtrate may not fairly represent the entire liquid, or the entire material which has been in the liquid form. The question should arise in every similar operation, whether a separation of materials may occur by *adhesion*.

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[7] The footnote under the heading of this paper explains why these contributions were not made. With much regret does the author admit that these studies in directions that might have been useful were unpublished.

We very often have to wash three or four times more than we should need to do, if there were no adhesions, and we had only to attain the requisite dilution of the salts of the filtrate. I am glad to know that this series of investigations is attracting the attention of men devoted to physical science, as well as of pharmacists, and is bringing attention to phenomena that have been passed by with too little attention.

PART II.

With this introduction, which seems to me to be essential to what follows, I come to the paper of Professor Scoville (1915), in which, as already stated, four insoluble substances—paper pulp, purified talc, infusorial earth and fullers' earth—were employed with neutral aqueous, acid aqueous, and alcoholic solutions of five plant alkaloids. Professor Scoville sums up, to the effect that paper pulp, as shown by careful analysis, is as a rule less adsorbent of the alkaloids and alkaloidal salts used, than any of the other substances employed. He also demonstrates that in aqueous neutral solution, strychnine sulphate, morphine sulphate, and atropine sulphate were adsorbed, in different amounts, whilst for quinine hydrochloride and citrate of caffeine, the paper lacked adhesion qualities.

Theorizing from Professor Scoville's results, as well as from those recorded three decades ago with other materials, we may rationally conclude that if a solution of mixed quinine hydrochloride, strychnine sulphate, citrated caffeine, morphine sulphate and atropine sulphate be filtered, the adhesion quality of the paper should exert itself differently on these different alkaloidal salts. The filtrate should, theoretically, *not* carry the proportions of the original mixture. Let us here attempt, by a lecture-room experiment, to illustrate both the adsorptive power of paper on alkaloidal salts, and its elective affinities.[8]

If the adsorption qualities of filter paper likewise vary, when colored alkaloidal salts and those colorless are dissolved together, should the affinity of the paper be greater for the colored salts than for those destitute of color, a mixture of solutions of colorless and colored alkaloidal salts should present, on filtration, a visible illustration of the adsorptive power of paper, if the paper elects the colored salt.[9]

Fortunately, the salts of two known alkaloids are *colored,* namely, berberine and sanguinarine; these I shall introduce. In addition, I shall present a highly colored, colloidal, vegetable structure of marked alkaloidal qualities, aiming, in my experiments, to make visible the result of the adhesion qualities existing between these and the filter paper. I also introduce another substance, hitherto neglected, "*Kryptonine,*" because, in my opinion, the isolation and purification of vegetable colloids, in which direction I have long taken pleasure, must soon become a feature of recognized pharmaceutical manipulation.

Let me first introduce an experiment with colored alkaloidal salts, paralleling my bibulous paper siphon experiments of 1884, when, by capillarity, such substances as ferrous sulphate, ferric sulphate and cupric sulphate, in mixed solutions, were separated one from another, and it was shown that even a *mixture of sulphuric acid and water* could be in like manner dissociated, the first portions of water passing over intact without even a trace of the sulphuric acid. In the experiment before us we shall see that the salts of berberine and sanguinarine[10] are completely separated by the paper siphon, the capillary filtrate passing alkaloid-free and colorless. (Experimental results are herewith exhibited.)

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[8] The adsorptive powers of different makes of filter paper vary greatly. That used in the present experiments is the Whatman, English filter paper, as supplied by the Arthur H. Thomas Company, Philadelphia. In this connection, Wittstein (*Practical Pharmaceutical Chemistry,* 1853, Darby edition) makes the following precise statement: "This is German printing paper, which is far more porous than English."

[9] We use the term as though the attractive force lay wholly in the paper. In our opinion, the reverse term might as well be used. The attraction is mutual.

Let us now pass from a capillary siphon to ordinary filtration processes.

Experiment No. 1.—In this cylinder I place a solution, in distilled water, of a salt of the natural red alkaloid of sanguinaria (di-sanguinarine sulphate), to which has been added a small amount of quinine disulphate. A test portion gives, with Mayer's reagent, a heavy precipitate. (Experiment.)

If time permitted, a striking illustration of the principle of paper adhesion could be given by filtering this solution through *single* filter papers, successively, until the filtrate passes colorless. The coloration of each paper and filtrate would decrease, with each operation, until after about the third filtration, the solution would pass colorless. For lack of time, I shall bunch five filter papers together, and pass the solution through them simultaneously, thus obtaining in one process the adhesion opportunities of the total number. (Experiment.)

It will be seen that the papers turn red, but the resultant filtrate passes colorless. The colored sanguinaria alkaloid is separated from the colorless quinine disulphate, which passes unchanged, the colorless filtrate producing an abundant precipitate with Mayer's test. (Experiment.)

Experiment No. 2.—We have here di-Berberine Sulphate dissolved in water to a yellow color. To this is added quinine disulphate, equal amounts of each being used. An acidulated test portion gives an alkaloidal reaction with Mayer's test.[11] (Experiment.)

This solution I now filter as before, through five filter papers. Although before filtration the solution is highly colored, the alkaloidal solution is dilute. This, Professor Scoville's experiments indicate as least likely to lose their alkaloidal content. He states:

> Two things are clear in these results. First, that excessive amounts of any filtering medium mean a loss in strength of the solution, and this loss is the greater, the nearer the solution is to its saturation point. Weak solutions may show little or even no loss, while strong solutions show a considerable loss.[12]

Note now that after filtration the paper is colored yellow, but that the filtrate passes colorless, and gives a heavy precipitate with Mayer's test (experiment), thus showing that *by elective affinity of the paper, the two alkaloidal salts have been separated.*

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[10] I use the name *Sanguinarine* as a blanket term, because it applied originally to the section of sanguinaria alkaloids that produce red salts, that are practically insoluble in water.

[11] Berberine sulphate is better precipitated with ammonium picrate. The precipitate with Mayer's test is more of a translucent coagulation, which separates colloidal but finally coalesces fairly well.

[12] My experiments with solutions of identical salts, in different dilutions (1884), demonstrated that the weaker solutions, first, had, progressively thereafter, lost their content. Illustrations were shown in a series (*Proceedings Amer. Phar. Assn.*, 1884) and explained, the following being a part: "In continuing the study of this phenomenon, we find that the proportion the iron salt bears to the liquid, influences the point at which the separation of the iron solution occurs. If the solution is dilute, the separation takes place just above the surface of the liquid in the vessel. As it increases in strength, the iron passes higher upon the paper, and with officinal, syrupy solution of tersulphate of iron, there will be no separation."

Experiment No. 3.—I hold in my hand a colloidal substance obtained from ipecac, that is possessed of decided alkaloidal qualities, as illustrated in the pages following, descriptive of this material, and the process by which it is obtained from ipecac. This alkaloidal structure is more powerfully tinctorial than are the salts of either berberine or sanguinarine For lack of a pre-given name or previous recognition, so far as I can determine, I call it, for descriptive purposes, *Kryptonine.* In distilled water, I have herewith dissolved enough " Kryptonine " to color the liquid decidedly yellow. I then add some quinine bisulphate, and test it with Mayer's reagent. (Experiment.) This yellow liquid I now filter through five filter papers. Note that the filtrate passes colorless, but yet, with Mayer's test, it gives an abundant alkaloidal precipitate (experiment), thus showing that the paper has abstracted the kryptonine, but not the quinine bisulphate.

REMARKS.

1. The question might arise as to whether this adsorption power would result, were the filter papers wet before filtration. To this I will answer that the wet papers retain the elected alkaloid *even better* than when dry. This I believe to be due to the fact that, as filters, the dry papers act more unevenly than when they are wet and stuck together.

2. Each paper seems to have a fixed adsorptive power for the alkaloid adsorbed. When this point is reached, the total solution passes through, unaltered. Thus the depleting action of the paper is limited to its saturation quality, and depends on the solution content, which I have not measured in this instance with exactness.

3. The adsorbed material is not collected upon the *surface* of the paper, as would be the case with a colloidal material in marked fibrous or gelatinous suspension. Note that the sides of each sheet of paper are tinged to about the same depth of color. Not until coloration appears at the *filtration tip* of the outer paper will there be any coloration of the filtrate. Then, with further filtration, the colored alkaloid passes, increasingly deeper. This problem and connected radiations concern colloidal or physical dispersion, and cannot be even mentioned herein.[13]

CONCLUSION.

The adsorptive action of pure filter paper, as indicated in the cited portions of the experiments presented thirty odd years ago, in which Professor Prescott so lucidly pointed to possible analytical variations, seems to me, together with the results tabulated by Professor Scoville, as well as the experiments presented herewith, to demonstrate that filter paper has not only an adsorptive, but a *discriminative* action on both alkaloidal salts and other substances. To this it may be added that colloidal precipitates in different physical conditions, for the separation of which filter paper is used, may, in accordance with their physical structures and alkaloidal affinities, act also as adsorbers for certain substances, thus perhaps accounting for analytical discrepancies where minute amounts of materials are concerned. In this connection, the surface actions of emulsion films, as well as the presence of finely divided colloids throughout emulsion textures, if neglected in delicate analytical processes may, to use Professor Prescott's words, " adsorb dissolved solids to a very inconvenient extent."

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[13] Much of my care in recent years has been devoted to the study of different grades and dilutions of materials. Some substances *seem* to dissolve, but are in dispersion. Others dissolve and next precipitate, often in colloidal suspension or chemical alterations. This mighty subject I aim now to theoretically evade, even by suggestive inference, but I may remark that, in order to establish that the solutions now before us are not *crude* colloidal suspensions, they have been allowed to stand for two weeks, and yet they maintain their transparency. Besides, after a paper is saturated with its elective constituent, the liquid filters freely and unaltered.

PART III.

KRYPTONINE.[14]

Preliminary.—This phase of my contribution is made with the request that it be accepted as an advance offering on a subject that, when further investigated, may lead to conclusions quite different from those now held by the author. If it be thus accepted, an effort will be made to study *Kryptonine* in connection with other alkaloidal slivers derived from the natural ipecac texture. The fact that the substance under consideration is colloidal and not crystalline does not, in the author's estimation, debar it from individuality, although its elaboration is rendered more perplexing. Indeed, as previously remarked, the time must some day arrive, when a study of *natural* plant structures will be a research feature of physicists interested in plant textures. Since they are highly colloidal and amorphous, the isolation of separates will naturally be accomplished by means of neutral liquids of different solvent qualities. Being destitute of crystalline structure, their isolations and descriptions must rest on qualities and attributes that do not govern fixed crystals. Since *Kryptonine* is, as yet, neither crystallizable nor productive of crystalline salts, its nature is herein featured by such attributes as solubility, physical properties, etc., as follows:

Description.—*Krytonine* is an Ipecac derivative of alkaloidal qualities. Air dried, it contains (*Waldbott*) 9.836 percent moisture, and 0.282 percent ash.[15]

Characteristics.—Colloidal, orange-yellow in minute colloidal precipitate, black in mass, scales, deep black in bulk, garnet-red in separates. All forms are destitute of crystalline structure, which also applies to its compounds with acids. Adhesion qualities with pure white filter paper, very pronounced. Not deliquescent.

Taste.—Very bitter. Saliva colored yellow thereby.

Soluble in water, alcohol, chloroform, glycerin, dilute sour acids, and dilute alkalies.

Insoluble in ether and benzol.

Dilute Solution in water and alcohol, *yellow* to *red,* in accordance with proportions. With alkalies, the yellow solution turns red. Sour acids added to excess, turn the red back to yellow.

Fehling's Test.—No reaction, or very faint.

Test for Tannin.—No reaction with ferric chloride.

Alkaloidal Tests.—Heavy precipitate with Mayer's Test Solution, Picric Acid, Tannin, and other alkaloidal reagents. Supernatant liquid colorless with Mayer's solution.

Chloroform Solution.—Yellow to red, in accordance with proportions. Alkalies turn this solution green. The addition of alcohol turns the green to red. If the solution be more concentrated, the green and red plays of color are more pronounced. On standing, the green of the chloroformic solution gradually fades, red resulting.

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[14] This substance was isolated by me in 1915, 125 pounds of ipecac yielding two grammes. On establishing its nature, three subsequent lots of ipecac, 125 pounds each, yielded, respectively, 112.4 grammes, 107 grammes, and 120 grammes. From this colloidal, alkaloidal substance, named *Kryptonine* by suggestion of Dr. H. W. Wiley (from " κρυπτόν," *the hidden thing*), I have failed in separating anything whatsoever, and believe it to be a non-crystallizable, colloidal alkaloid. Probably heroic chemistry will split it into slivers, some of the fragments being, possibly, crystalline.—*J. U. L.*

[15] This minute amount of ash of adhesion has not been separated by any process as yet applied. It precipitates with Kryptonine, and dissolves with it.

Formula (Dr. Sigmund Waldbott).—$C_{29}H_{40}N_2O_9$.

PREPARATION OF KRYPTONINE.

Total Ipecac Alkaloids.—Exhaust ground ipecac with water. Add to the percolate *Lloyd's Reagent,* to ultimate precipitation of the alkaloid. Dry the alkaloid-saturated Lloyd's Reagent. This compound carries the total alkaloidal content of the ipecac, in a colloidal form.

Separation of Total Alkaloids.—Powder the saturated reagent, and in a mechanical separator cover it with chloroform. Add carefully 10 percent solution of caustic soda,[16] sufficient to liberate the ipecac alkaloids. Draw off the chloroformic solution into a continuous still, adding fresh chloroform until the reagent is exhausted. The still contents will hold the total alkaloidal content, in chloroformic solution.

Total Alkaloid as Sulphate.—Evaporate the alkaloidal chloroformic solution in the still, to a syrupy consistence, and having previously established its combining strength, add 1 percent sulphuric acid water sufficient to the total extraction of the alkaloidal salt thus produced, distilling the chloroform from beneath. Quickly cool (*with ice*) the solution of total alkaloids (now in the form of sulphates), and then at once dilute with ice water to the bulk of one-third the amount of ipecac used.

Separation of Emetine.—Keeping the liquid ice cold, precipitate the emetine by the addition of dilute solution of caustic soda carefully and slowly added with constant stirring. Filter the magma from the emetine, washing the precipitated emetine with cold, distilled water. Then, in a "knuckle joint," or hydraulic press, gradually applied, squeeze the liquid from the emetine magma, and add it to the previous filtrate. This filtrate contains the "black alkaloid"[17] (Kryptonine) and the *cephaeline,* together with minute amounts of emetine, resins and fat, soluble in that liquid.

Separation of Cephaeline.—Extract the liquid by repeated agitations with chloroformic fractions, which abstracts the cephaeline and kryptonine, contaminated with traces of emetine and resins. Distil the chloroform to a thin syrup and, slowly, with constant stirring, pour into an excessive amount of sulphuric ether. Most of the cephaeline and emetine remain in solution. *The Kryptonine separates as a friable, orange-yellow, amorphous precipitate.*

To Purify Kryptonine.—Decant the ether, and wash the precipitate with successive amounts of cold ether, until all the chloroform is removed, the orange-yellow precipitate being practically thus freed from traces of adhering cephaeline and emetine.[18] Add now an excess of ether, and (*gradually*) small amounts of distilled water, shaking well together. The yellow precipitate immediately coalesces into a material, black and tar-like. This frees the kryptonine from appreciable amounts of cephaeline and emetine, which, if present at all, remain in the ether. Now decant all the ether, which leaves the kryptonine in mass practically pure, the contaminations being mainly small amounts of resinous materials.

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[16] This was used in this experiment, to determine if Kryptonine is an ammonia decomposition product, ammonia having been used in preceding processes that gave the same substance. One hundred and twenty-five pounds of ipecac were used.

[17] Following the old name, "Black Tar," I first gave to this alkaloidal substance the title, "Black Alkaloid." (See footnote 19.)

[18] The adhesion powers of alkaloidal precipitates for soluble alkaloidal salts of other alkaloids, even in the presence of strong solvents, is often most pronounced.

Separation of Traces of Adhering Resinous Materials.—Dissolve the kryptonine[19] in distilled water to a very thin, syrupy condition, and allow it to stand twenty-four hours, thus separating the resinous material. Filter the dark-red, almost black, aqueous solution, and in order to catch any remaining resin or foreign alkaloid, if any there be, again wash it thoroughly in a rotater, by means of sulphuric ether, in which the kryptonine is insoluble. This final ether washing will remove all traces of fat, resin, and any possible contamination with cephaeline and emetine, the ruby-red aqueous liquid carrying the kryptonine in a physically pure condition.[20] Evaporate to a syrupy condition, spread on glass, and dry.

SUMMARY.

The process may be summarized as follows:

1. Total extraction of the ipecac alkaloids soluble in water, or 1 percent aqueous sulphuric acid.
2. Total precipitation in adhesion, by means of Lloyd's Reagent.
3. Extraction of total alkaloid from Lloyd's Reagent by liberation with 10 percent solution of caustic soda (or other alkali), in contact with chloroform.
4. Transferring of total alkaloid from the chloroform to the estimated amount of diluted sulphuric acid.
5. Separation of emetine by precipitation with solution of caustic soda. (Other alkalies answer the same purpose.)
6. Extraction of mixed cephaeline and kryptonine by agitation of the filtrate with chloroform fractions.
7. Precipitation of kryptonine by pouring slowly, in thin stream, the mixed chloroformic solution (evaporated to syrupy condition),, with constant stirring, into an excess of ether.
8. Purification, by precipitation and washing with proper solvents. (See process. Kryptonine, being colloidal by this process, is not capable of crystallization.)
9. Drying of the "black alkaloid," *Kryptonine.*

The ultimate analysis of Kryptonine, by Dr. Sigmund Waldbott, reached me just before this session convened. I take great pleasure in extending to Dr. Waldbott, herewith, my personal thanks for his painstaking care, and append the detailed results obtained by him, in the following report:

ULTIMATE ANALYSIS OF JOHN URI LLOYD'S IPECAC ALKALOID "KRYPTONINE."

BY DR. SIGMUND WALDBOTT.

Water.—Upon drying between 105° and 110° C., the substance lost *9.836 percent* H_2O.

Ash.—Upon incineration, the substance left *0.282 percent* of ash.

Combustion.—(*a*) 0.2939 Gm. of original substance, corresponding to 0.26416 Gm. of ash-free, anhydrous substance, yielded: H_2O, 0.1693 Gm. or $H = 0.0189$

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[19] More than thirty years ago, in working ipecac on a large scale, I obtained a substance of alkaloidal qualities, which at that time was to me a perplexing disturber. I then applied the term "black tar" in referring to it, ascribing its alkaloidal qualities to *adhering emetine.—J. U. L.*

[20] The overlying ether will be colored yellowish. It is scarcely necessary to record that the water taken by the ether carries enough kryptonine to color the mixture. In pure ether, kryptonine is insoluble.

Gm. = *7.15 percent* (referred to ash-free, anhydrous alkaloid). CO_2, 0.5991 Gm. or $C = 0.16339$ Gm. = *61.85 percent* (referred to ash-free, anhydrous alkaloid). (*b*) 0.3235 Gm. of original substance, corresponding to 0.29077 Gm. of ash-free, anhydrous substance, yielded: N gas, 13.2 Cc. at 755 mm. barometric pressure and 24.5° C. $N = 0.01459$ Gm. = *5.02 percent.*

From these data, the molecular formula, $C_{29}H_{40}N_2O_9$, is deduced for the ash-free, anhydrous alkaloid. The water content of the hydrous substance corresponds to about 3.5 molecules.

	Percentages found, as above, for ash-free, anhydrous alkaloid	Percentage calculated from $C_{29}H_{40}N_2O_9$
Carbon........	61.85 percent	62.11 percent
Hydrogen....	7.15 percent	7.14 percent
Nitrogen......	5.02 percent	5.00 percent
Oxygen.......	25.98 percent (by difference)	25.71 percent
Water........	9.864 percent (referred to ash-free substance)	10.11 (calculated from $H_{29}H_{40}N_2O_9$. $3.5H_2O$)

CONCLUSION

The process outlined should be conducted, from beginning to end, with *cold* liquids, wherever manipulation connected with precipitation is concerned.

So far as I can determine, the substance herein described under the term "Kryptonine," has been, till now, overlooked, unless it be the "third alkaloid" mentioned in the investigations of Paul and Cownley (*Ph. J. and Trans.*, Feb. 16, 1895), which seems improbable, by reason of the fact that they obtained it *in crystals, from an ether solution.* They state:

> The quantity obtained as yet was too small to admit of complete examination, but the physical characters of this alkaloid distinguish it in a very definite manner. It is a crystallizable substance obtainable by slow evaporation of an ether solution in well-defined transparent prisms of a pale lemon-yellow color.

With reluctance do I affix a name to this substance, but to do so is a necessity. Even though the term "Kryptonine" be subsequently found to apply to a colloidal body not altogether alkaloidal, its qualities seem to me to be pronounced enough to individualize it as a non-crystallizable structure, capable, by its characteristics, of standing alone.

Considering this present contribution to be but a preliminary announcement, I would ask that this colloidal substance, and its relationship to the ipecac texture that yields it, as well as other ipecac alkaloids, be awarded me for further consideration.

DISCUSSION.

H. H. Rusby: I want to ask Professor Lloyd a question that is of fundamental importance. I would like to ask him which one of the three varieties of ipecac was used in these tests, how it was received, whether ground or not, and what steps were taken to ascertain whether there were any impurities—whether there were any stems present, and, if so, were they attached to the root or separated from it? Was each piece examined separately to be sure it was ipecac and of the particular species used?

Now, if anyone thinks these things are unimportant, I am going to make a few statements which will convince them that they are important.

During the last two years there has been several times as much adulteration and substitution of ipecac as has ever been known before, some intentional and some unintentional. The presence of stems in ipecac not attached to the stems is exceedingly dangerous, because some of these stems may belong to other plants growing with the ipecac, and they resemble it so closely that it is almost impossible to discriminate between them. Some of the impurities of a vegetable character in ipecac have been so like it that we people who have examined the ipecac did not detect them for a long time, but I know that we found in the Cartagena ipecac as much as fifty percent of a stem which resembles the underground rhizome of the Cartagena ipecac. These were so much like the rhizomes of the Cartagena variety that they had to be examined microscopically to be sure which was which.

If anyone is going to examine a drug in the splendid manner in which this was investigated, I hold that no efforts can be too painstaking to determine beforehand that the substance is pure.

On one occasion I made some investigations of Scopola and Belladonna which involved one hundred pounds of each and I took every single piece and examined it, and I was then able to swear there was not one single piece that went into the substance examined that was not the genuine.

I do not know what steps Dr. Lloyd took to determine whether or not there was a certain amount of impurities. The Pharmacopœia admits a certain amount of impurity. If there is any present we are bound to admit it. That is the law. But, that small amount, that may have been present, may also have been the substance which contained this alkaloid.

I want to tell you that the importance of this has never been properly appreciated. If every step is not taken with such care that the existence of any impurity is impossible, the whole positiveness of the chemical results is destroyed.

J. U. Lloyd: That was really ipecac as nearly as I could determine. As nearly as I could tell it was pure. I will be extremely glad, however, if you will furnish a lot that carries your name as authority. I am sure, however, there was not enough foreign material in the ipecac to produce the kryptonine obtained.

Geo. M. Beringer: I was very much impressed with the paper just presented, and with its far-reaching importance. It seems to me that there is hardly a line of scientific research on which the substance of this paper is not going to have an influence. All the way through this paper has a bearing on the work in every line of physical and chemical science. I can see the importance of publishing these papers and the influence they are going to have on general science and scientific investigation.

C. P. Wimmer: I have also listened with a great deal of interest to Professor Lloyd's paper. I believe he has really discovered a new substance in ipecac. Look at it from a colloid standpoint. The colloidal chemists say that when a substance changes from one state to another state, it will pass through a colloidal state before it will assume a crystallized state. Professor Weymouth goes so far as to say that gases are colloidal, but this is far-fetched and perhaps difficult to prove.

Let us apply this to the plant. The alkaloid in a plant is supposed to be excretum. That is, the metabolism of the plant will have no use for certain substances—nitrogenous, carbonaceous, and these will be formed, first, into colloidal substances and then into alkaloidal crystals.

I believe Professor Lloyd has discovered a colloidal alkaloidal plant substance and has shown us the way to find many new alkaloids. Take alone the point of the solubility of that alkaloid. That may be of the utmost importance in pharmaceutical work.

I have listened to this paper with a great deal of interest, and I think it is of the utmost importance to research workers.

Virgil Coblentz: A few years ago I had occasion to work up some experiments, and I was exceedingly annoyed by the presence of this substance. Every time I used ether or benzol I would get this substance. I assumed it was a resin substance carrying some of the alkaloidal matter. I tried to crystallize it in all possible solvents but it was simply impossible to do so, and I laid it aside for future reference. I now find that Professor Lloyd has gone ahead and named it.

J. U. Lloyd: There is no question about it being there. The peculiar yellow color is simply indicative of it.

Virgil Coblentz: In your separation of the akaloids, can you wash your filter paper and still retain the one alkaloid and allow the other to be washed out?

J. U. Lloyd: It reluctantly retains it.

Philip Asher: We can hardly appreciate what Professor Lloyd has done for us. This opens up a great many avenues of research work for us. It is surprising in looking at a tabulation of analytical results sent out by various committees to see the difference in them, and we can now appreciate why some of these differences may obtain.

The physicist has also a new problem with which to battle, and that is upon what physical laws, upon what conditions do these changes actually take place? Suppose we have a different mixture of alkaloids, if we get this study to an exact science we can say with positiveness that this condition will take place, but to-day we are all at sea. The Pharmacopœia and all other standards have given us certain standards for finished preparations. The pharmacist has been honest and conscientious in making preparations to the best of his ability. But let us see now what it amounts to when we find that simple filtration destroys all our efforts; and if I am in order, when the motion is put, I feel that we should all show our appreciation of Professor Lloyd's efforts by a rising vote.

F. R. **Eldred**: Dr. Rusby raised a question of the possible impurities in the material used by Dr. Lloyd, and I might add that in having worked up a large number of lots of ipecac, we have accumulated quite a large quantity of the substance which I presume is the same as Professor Lloyd has shown here—insoluble in ether, soluble in water, and it has practically the same qualities as those he has mentioned. It seems to me that that answers the question as to whether the substance is a constituent of the ipecac or an impurity.

L. W. **Rowe**: It seems to me that Dr. Lloyd is a pioneer in the application of physical chemistry to pharmacy. We know that pharmacy so far is an impractical science. We have a lot of rule-of-thumb methods, which we hope some day will be put on a scientific basis. Physical chemistry has been applied in nearly every science—it is being used in practically every branch of industry, and you will find that physical chemistry is the means of putting rule-of-thumb methods on a scientific basis.

Now, Professor Lloyd is a pioneer in the application of physical chemistry to pharmacy. Not long ago, some correspondence which I had with Professor Bancroft, at Cornell, shows that he is very much impressed with the wonderful field there is to place pharmacy on a scientific basis—the vegetable extracts, etc., which Professor Lloyd has taken up. We certainly have to take off our hats to Dr. Lloyd for starting this new field of physical chemistry and we hope his work will be a stimulus to younger men in continuing the work he has begun.

W. H. **Zeigler**: I would like to ask if any thing has been done from a pharmacological standpoint with this new substance, and if it has any therapeutic action at all.

J. L. **Turner**: What impressed me most in Professor Lloyd's paper is his wonderful power of observation, combined with his ability to doubt authorities given us in literature. Everyone of us would have seen this substance, but we would not have gone on with it as he has. We are used to working with crystalline substances. Nevertheless, Professor Lloyd was not satisfied. Instead of calling this substance an impurity, he went further into the subject and did more than anyone of us would have done—he investigated the substance, and this shows the necessity of going deeper into the subject we are investigating, far deeper than we usually do, and especially to develop that ability of doubting the authorities that Professor Lloyd possesses.

I would like to ask Professor Lloyd if any attempt was made to prepare the various salts of Kryptonine, such as sulphates, picrates, hydrochlorides, etc.

J. U. **Lloyd**: I will try and answer the various questions, to the best of my ability, but I would like to ask you to comprehend that I too am only a questioner, so that I shrink from venturing into the subject that is extending outside of my line so remarkably. I think the first question was as to the material employed. Old-fashioned ipecac, which was unquestionably true to name was used. Second. All the salts of Kryptonine with the sour acids are colloidal. All alkaloidal reagent precipitates are likewise amorphous, or colloidal.

I come now to the colloidal composition of drug structures. May I go a little further than you have gone?

Excluding opium, of which I have made no systematic study, I have as yet to find an alkaloidal drug that does not contain a water-soluble alkaloid, if it contains an insoluble one.

My studies of plants have also led me to believe that alkaloids existing in plants are,—*in the plants*,—colloidal. In the plant structure they are not crystals, and when they become crystalline, through an artificial process, such alkaloidal salts, are, *in themselves*, valuable or otherwise, regardless of the conditions in which they exist in the mother structure of the drug which yields them.

Another question was asked me as to the physiological aspect of Kryptonine. I do not place as much dependence on the physiological action of a drug on a creature in health, or its disturbance of a normal life function as proving its total therapeutic value, as some people do. But this is an invaluable method for establishing certain qualities (activities) of the drug, even if it does not always apply in diseased conditions. Kryptonine has been put into the hands of a well-known pharmacologist, but I have not as yet received his report.

Let me say in conclusion that I have not answered all the questions that have been asked me, because of my hesitancy in directions in which I feel myself quite inadequate. The whole colloidal problem is to me full of questionings. The ultra-microscope will be a mighty factor, in my opinion, in determining the answers to many of the questions that have come to me, as well as to many others, as yet unuttered.

SOLID AND POWDERED EXTRACTS.

BY E. L. MAINES.

The U. S. P. Ninth Revision states that " Pilular Extracts are solid or semisolid products prepared by exhausting drugs with appropriate solvents and carefully evaporating the solutions to the proper consistence."

It also further states that, Pilular Extracts are extensively used in pill masses and in ointments and, to facilitate their use in these preparations, the degree of concentration is commonly directed to be that of a " pilular consistence."

The Pharmacopœia tells us that for the convenience of the prescriber, the standards of strength for the extracts have been adjusted, wherever possible, so that each bears a definite relation to that of the respective drug of average strength, and a statement of the standard precedes the formula.

This is certainly a step in the right direction.

For some time the writer has endeavored to procure definite standards for non-alkaloidal solid and powdered extracts, this work being taken up by the Scientific Section of the American Association of Pharmaceutical Chemists.

The term " pilular consistence " is indefinite and questionable. Solid extracts may be of " pilular consistence " and yet be adulterated with fifty percent or more of glucose.

Powdered extracts are even more liable to " filling " with starch, magnesia, powdered marc, kieselguhr, etc., than solid extracts.

Unofficial non-alkaloidal powdered extracts may be made to almost any standard and yet pass undetected.

This is decidedly unfair in a commercial way to say nothing of its practice as a menace in a therapeutic way.

The physician must depend upon reliable, uniform and potent remedies in order to obtain satisfactory results.

In a commercial way it is of utmost importance that extracts be of some definite strength. One firm quotes upon a 1 to 3 extract while another quotes on a 1 to 5 product. What is the result? The consumer thinks one party is taking an unfair advantage of him or he could quote a lower price.

Much of this could be eliminated by proper regulation of standards.

I would suggest that the next Revision Committee consider the advisability of adopting a uniform and definite relation of drug to extract for every commercial crude drug and that this list of standards be included in the text of the next Pharmacopœia for both solid and powdered extracts.

DRUG-PLANT CULTURE IN 1916.*

BY W. W. STOCKBERGER.[1]

During the past two or three years, the production of literature on the cultivation of medicinal plants has proceeded with what may well be called a breathless rush, and while we are as yet far from being certain that our feet are on firm ground, nevertheless it is highly desirable at this time that we pause for a while to consider well the direction in which we are so rapidly moving. It is possible, even probable, that unexpected or unconsidered difficulties will be encountered at no great distance ahead. The enthusiasm and optimism responsible for the tremendous wave of interest in drug-plant culture which has indeed gone around the world has for the most part stifled the voices of those who would inquire more thoroughly into the economic aspects of drug-growing before attempting to engage therein on a commercial scale. The shortage in botanic drugs with the corresponding sharp advance in prices which we have all noted during the past two years has apparently been accepted widely as an indication that the requirements for these materials are practically unlimited, that the supply can never overtake the demand, and that the present inflated prices will not decline from their present levels at least for a long time to come. Although the total output of medicinal plants represents but a very small fraction of the world's commerce in agricultural products, I will hazard the statement with little fear of contradiction that there has been more excitement and enthusiasm manifested about the cultivation of medicinal plants than there has with regard to many other economic products, the value of which exceeded by many times that of our botanic drugs and for which the world's necessity is at least equally great. In the United States, the profits to be realized from the cultivation of medicinal plants has been a favorite theme, both from the platform and in the pharmaceutical press. Abroad, patriotic motives have led individuals to go even further, and as a result the cultivation of medicinal herbs has been undertaken in a number of countries both by individuals and by associations formed for that specific purpose. Among these may be mentioned the Society of the United Irishwomen, The Herb-growing Associations, in England, and The Medicinal Plants Board in Australia.

It is gratifying to note that evidence of returning sanity as regards the drug-plant situation is now accumulating on every hand. From a recent writer [2] in *The Pharmaceutical Journal and Pharmacist,* I quote:

"The enthusiasm of the herb-growing sisterhood is really getting almost a nuisance. A friend of mine who occasionally writes for the press tells me that in a thoughtless moment he gave his printed blessing to this movement, since when rarely a day passes but he has occasion to repent him of his vanity. From all parts of the British Isles he is the regular recipient of letters from patriots who took him too seriously. Medicinal herb-growing is no amateur's pastime, and much disappointment is bound to meet those who think it is. I am told that merchants have been offered a few pounds of newly collected dandelion roots at 105s. a cwt. I should be sorry to say anything to discourage the praiseworthy intentions of that vast if scattered community of ladies and gentlemen who think they can help their country by turning their strawberry beds into foxglove plantations, but really someone ought to tell them they are on the wrong track. Occasionally one gets a gleam of common sense through the great black cloud of ignorance."

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*Read before Scientific Section, A.Ph.A. Atlantic City Meeting, 1916.

[1] Physiologist in Charge of Drug-Plant and Poisonous-Plant Investigations, Bureau of Plant Industry, United States Department of Agriculture.

[2] *The Pharmaceutical Journal and Pharmacist,* vol. 96, p. 645, June 24, 1916.

Another writer,[3] in the *Chemist and Druggist,* expresses much the same idea as follows:

The Cultivation of Medicinal Plants.

"This appears to be catching on as the very latest hobby for ladies who have not been able to find any outlet for their energies in the usual (war) channels. I use the term "hobby" advisedly, for I am quite sure that of every hundred people who take up plant cultivation and gathering at least ninety-nine will drop it long before it comes to be a paying proposition. It appears that not only in this country, but in some allied countries, societies are being started for the promotion of this subject, and where there is behind the promoters sufficient capital to ensure a few years of labour without any remuneration there is the possibility that some profit will by and by be made in the undertaking. At the best, however, it must be a case of casting their bread upon the waters with little hope that it will come back after many days, much less come back 'buttered too, for certain,' as Biglow's Pious Editor phrased it. The isolated, spasmodic efforts now being made throughout the country by people, themselves unacquainted with plant-farming, and depending for their information on experts, are hardly likely to add much to the sum total of drugs cultivated in Great Britain."

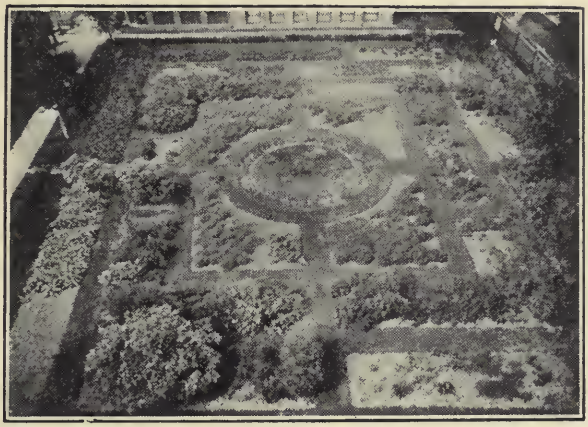

FIG. 1.—General view of the medicinal plant garden, College of Pharmacy, University of Nebraska.

Prof. J. H. Maiden,[4] the veteran Government Botanist of Australia, in a recent discussion of the cultivation of drug-plants, insisted on great caution in this enterprise and emphasized the fact that "the drug industry is highly technical and the willing man with land must not be encouraged to engage in it until he has acquired the necessary culture knowledge and has suitable land well situated as regards climatic conditions and transport." Prof. Maiden rightly points out the danger of over-production in certain lines and urges the great desirability of a thorough organization of the industry in order that time, money and labor may not be uselessly expended in attempting to produce materials in competition with other lands which have a positive advantage owing to their favorable conditions of production or cheaper technical labor involved than in many of the processes of producing botanic drugs.

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[3] *The Chemist and Druggist,* vol. 88, p. 41, July 8, 1916.

[4] *Botanical Gazette of New South Wales,* vol. 28, p. 134, 1906.

In this country, there is a growing recognition of the fact that prospective drug growers have derived many false ideas from the numerous well-meaning but over-sanguine newspaper and magazine articles recommending drug culture as a sure and easy means to large and certain profits. However, among those who have given the matter the most careful consideration the opinion is quite general that a successful and permanent drug-growing industry in the United States cannot be built up along the lines which have been so widely recommended. There is, of course, ample opportunity for those who would grow drugs not for profit, but for patriotic, philanthropic or sentimental reasons, but as a purely commercial proposition drug-growing presents fully as many difficulties as any other specialized crop in the realm either of agriculture or horticulture. It is well to reiterate the statement which I have frequently made in other connections that the growing of drug-plants offers little promise as a side crop for general farmers and that conditions in this country are far more favorable to this enterprise if entered into only by well equipped growers who do not need to depend for their livelihood upon this industry, and who have sufficient capital at their command to enable them properly to equip and maintain the enterprise until it can be put upon a paying basis.

At the meeting of this Association held at Detroit, in 1914, I presented before the Scientific Section a paper on medicinal plants in which a differentiation was made between medicinal plant gardens which are industrial and those which are pedagogic in their functions and uses. The industrial garden was defined as one, "the object of which is to give additional information concerning our agricultural resources." It is gratifying to know that since the writing of that paper there has been a substantial and I trust a permanent increase in the public interest in gardens of this character. In addition to the several industrial drug gardens now maintained by the Bureau of Plant Industry in different portions of the United States, there have been developed by several well-known pharmaceutical manufacturers highly creditable industrial gardens which are not only yielding information with respect to the economics of drug-plant production, but which are also supplying in part the manufacturer's requirements for certain crude botanic drugs.

Occasions are conceivable which might excuse an indulgence in glittering generalities with regard to these gardens and there is no gainsaying the fact that as a rule an optimistic or rosy discussion of drug-growing meets with a more ready and appreciative acceptance than is accorded to a conservative statement which directs attention to the risks and drawbacks which will be encountered and consider only material which is well within the realm of fact. Artistic pictures and word-paintings are all very well as a means of stimulating interest in the subject but the mere desire to be interesting should induce no one to place himself in the questionable position of prevailing upon a fellowman to invest his time and money in an enterprise with the expectation of deriving profit therefrom unless he can produce concrete data to show conclusively that such profits may be expected with reasonable certainty. To repeat a pertinent illustration used on a former occasion, let me recall the statements of a writer in one of our well-known pharmaceutical journals who recommended the castor bean as a profitable crop "on rocky and otherwise unprofitable land, on hillsides or arid desert soil" in the Southwestern States. With charming naivete this same writer later made the admission that he had no personal knowledge whatever of agricultural conditions in the Southwest. A contributor to a recent number of our own A. Ph. A. Journal has also made some surprising recommendations with regard to this same castor oil plant. Both of these writers apparently entirely overlooked the fact that the existence of a demand for a commodity is not necessarily an indication that it is a commercial possibility in this country. The market requirement may be large, and the price apparently attractive, but other factors, among which may be mentioned the price of land, cost of labor, competing crops, and transportation, enter so largely into the commercial aspect of the question that they practically determine whether or not the crop is a commercial possibility.

It would seem therefore that there exists at present a great need for the multiplication of the industrial type of medicinal plant garden in order that there may be obtained in various sections of the country dependable data on the commercial phase of drug-growing. It should be obvious to everyone that such data to have any practical value must be acquired under practical commercial conditions.

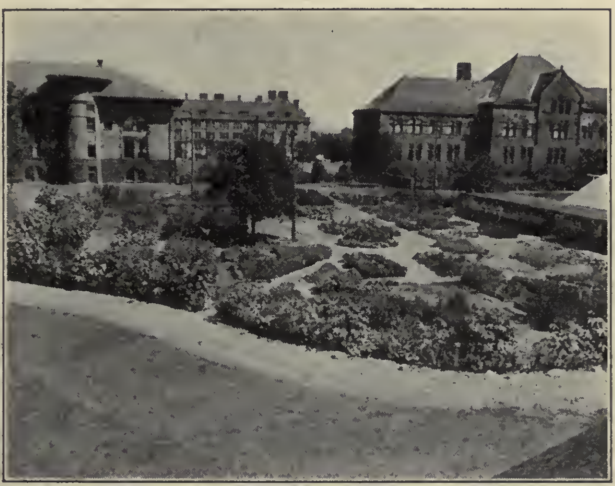

FIG. 2.—General view of the medicinal plant garden, College of Pharmacy, University of Minnesota.

During the past two years, there has been a marked increase of interest in the pedagogic garden, the characteristics and functions of which I have elsewhere discussed.[5] The number of educational institutions which maintain medicinal plant gardens in connection with their courses in pharmacy is rapidly increasing. Among these may be mentioned the Universities of Michigan, Minnesota, Nebraska, Wisconsin and Washington. Similar gardens are also maintained at Purdue, Grinnell, and the State Colleges of South Dakota and Washington. The establishment and proper support of a medicinal plant garden of the pedagogic type as an adjunct to a college of pharmacy or the course in pharmacognosy of a university should be of direct and practical benefit to the students, to the university itself, and finally to the people as a whole. The students should profit from such an enterprise largely from the fact that they can be brought into direct contact with medicinal plants which are in a living state, and learn at first hand the processes through which material obtained from the fresh plant must pass before it becomes the finished product. They will thus gain a broader and more comprehensive basis on which to develop in them an appreciation of the necessity for a high standard of purity in crude drugs and they will also acquire information with respect to opportunities for sophistication or impairment of quality through faulty methods of preparation and handling and hence become better prepared to exercise the care and judgment necessary in the selection and use of crude drug products. Their interest in and appreciation of Materia Medica likewise will receive a great stimulus through their contact in an objective way with crude drugs during their course of preparation. Very important to the students also will be the thorough grounding in the economics of the crude drug trade which they will receive through the proper course of instruction which can be given in connection with a pedagogic garden. The student who will make a careful record of the expenditure of labor (preferably his own) necessary to produce a given quantity of drug and then after marketing the same deducts from the returns a fair allowance for his work, will not be likely to become infected with the erroneous ideas now only too prevalent concerning the enormous profits to be derived from the production of medicinal plants.

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[5] JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 3: 1436–1440, 1914.

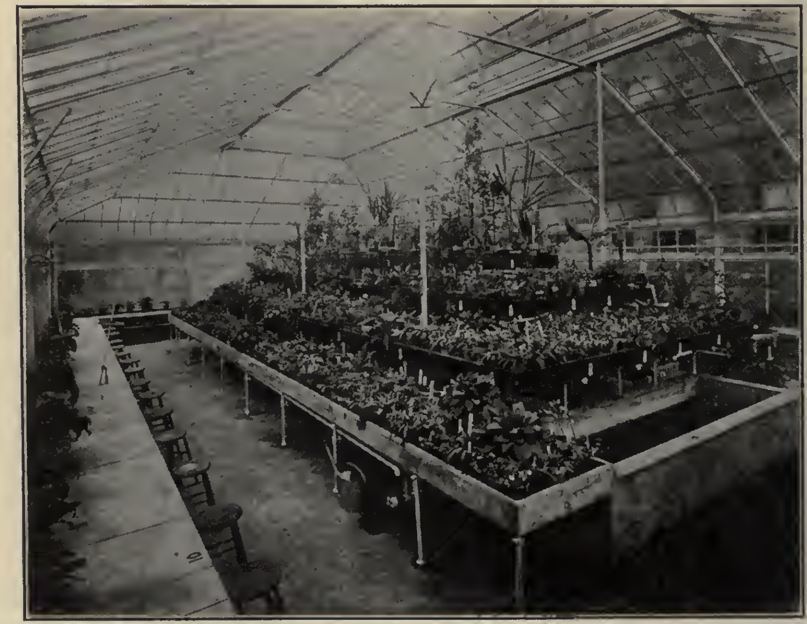

Fig. 3.—Interior view of the medicinal plant laboratory, College of Pharmacy, University of Minnesota.

To the University the medicinal plant garden is an invaluable aid and resource in teaching materia medica, pharmacy, pharmacognosy, botany and forestry. The pedagogic garden will furnish much of the living material necessary for the first year's work in botany, and in the pharmacy school the double purpose will be served by using medicinal plants as working materials in the teaching of morphology and general plant histology. The pedagogic garden also affords the student the means for pursuing the study of the production of the actual drugs in the field and the methods of their collection and preparation. The supply of living plants which can be obtained from the garden will greatly extend the opportunity for research work on the part of advanced students of pharmacy. Most of the specifications regarding time and method of collecting, curing and preserving crude drugs are based on tradition, and not on scientific experiment, and the determination of the relative value of our present requirements with respect to the preparation of botanic drugs affords an almost limitless field for research. In another direction also the study of the variation of the active principle among different species of a genus, or even among individuals of the same species, affords great possibilities. The work on belladonna now being conducted by the Bureau of Plant Industry is an illustration of this type of research, opportunities for which are practically without number and many of which may easily be made evident to the student through the proper use of the medicinal plant garden. By this means not only will the effectiveness of the teaching be increased, but the interest and appreciation of the students in this line of work will be aroused and held, results both of which are quite in harmony with the higher interests of the University.

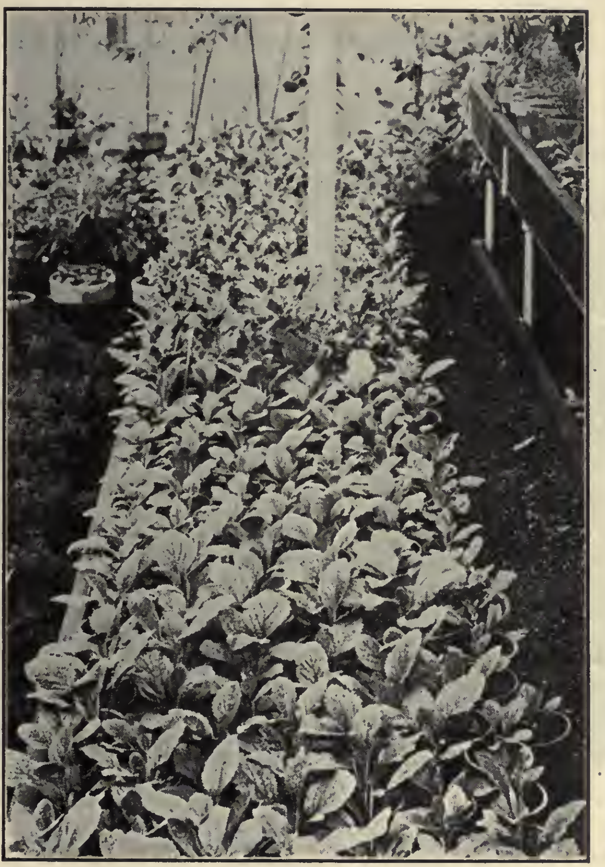

Fig. 4.—Digitalis and hyoscyamus seedlings in medicinal plant laboratory, College of Pharmacy, University of Minnesota.

To the people as a whole, the establishment and maintenance of the pedagogic drug garden in connection with our institutions of learning are of direct value in many ways, only a few of which there is now time to mention. It will furnish information regarding the medicinal plants which are adapted for cultivation in the particular locality in which the garden is located, and thus in time provide a fund of information of permanent value to the agricultural population of the region. Such information will be of especial value in the immediate future, since the necessity for a wider diversification of the agriculture of many localities is receiving increased recognition and further since for large areas there exists practically no reliable data regarding the agricultural possibilities for medicinal plant culture. The pedagogic garden properly directed will perhaps lead to the development of the larger, and in some respects more important industrial gardens which in turn may point the way to new agricultural industries. Although these industries may be relatively small as compared with staple crops, yet they will contribute to a more diversified agriculture and afford opportunities for an individual here and there to add to his income or better to ultilize the agricultural facilities which they already possess. By more widely diffusing knowledge respecting medicinal plants, the pedagogic garden should lead to a fuller utilization of the natural resources of the country, and should be the means not only of training students who are to be pharmacists along these lines, but also of arousing a wider interest in these resources, and in the dissemination of knowledge regarding them and their inherent possibilities. If the garden is conducted on a sufficiently large scale, it will furnish data on the production of drug-plants which when properly prepared and disseminated will safeguard the people of the country from loss through ill-considered ventures in drug-plant cultivation. The country is now full of talk about the enormous profits to be made from the growing of medicinal plants, all of which means nothing if it cannot be supported by positive concrete evidence of profits realized or material advantage to be gained. It is to be hoped

A COMMERCIAL TEST AND BREEDING PLOT OF BELLADONNA.

that the work of the pedagogic and industrial drug gardens will continue to develop hand in hand and that by means of the trustworthy data acquired from each, the commercial production of botanic drugs in the United States may be placed upon a sound basis, the quality of drugs of this class be increased, and a general good result to our people as a whole.

DISCUSSION

R. A. LYMAN: Just a word about the Drug-Plant Garden work. I think this subject is very important at the present time. I know of a number of instances where there was considerable difficulty in making the officials of the institutions which they represent become interested in the drug-plant garden for teaching purposes. Many think it is useless. I had that condition to meet in Nebraska, but in the course of two or three years the drug-plant garden has become one of the most interesting points in the city of Lincoln, and I find it is being advertised, not only on the campus, but by the leading commercial club and I find reference to it in the leading newspapers of the State. It has given the people a very different idea of pharmacy; because of the fact that the war has so influenced the importation of crude drugs, the attention of the people has been called to the necessity of getting an adequate supply of crude drugs, and the war has helped this matter very greatly.

I look at it from an entirely educational standpoint just at the present time. The Regents of our institutions understand that it takes money to establish a laboratory, and I look upon the drug-plant garden as a laboratory. They would not think anything of paying seventy-five to a hundred thousand dollars for a laboratory to do a certain thing, and it should be put up to them that a drug-plant garden represents a laboratory and has become a source of information where we can get things for the university and for the college of pharmacy which we cannot obtain in any other way.

Again, the drug-plant garden idea has been an inspiration to students and students have begun to think differently about the study of drugs. Many students go out from the university and start gardens in their home towns. I do not say that they will produce a great number of plants and largely increase the supply of drugs, but they are interested in the professional things of pharmacy. It interests them in research work, in that they are trying to produce things that were not produced before.

I want to personally thank Dr. Stockberger for his paper, and for the assistance he has given me in helping me to develop the garden at the University of Nebraska, not only by furnishing available material, but with the suggestions he has given me from time to time.

C. E. VANDERKLEED: By way of encouragement to schools of pharmacy, it was my privilege last year to pay a visit to the University of Berlin, and while they have beautiful laboratories, well equipped, what to me was the most impressive thing was the botanical garden covering acres, in which they were raising every plant—every medicinal plant—it was possible to raise in that climate. Dr. Thoms became quite enthusiastic in telling of its value to the student by being able to go out into that garden and collect a plant containing a sufficient amount of, say, volatile oil, take it into the laboratory and properly cure it and distil the volatile oil and obtain the finished pharmaceutical product, and there is no reason why our pharmaceutical schools should not have this same advantage for their students.

SECTION ON EDUCATION AND LEGISLATION, AMERICAN PHARMACEUTICAL ASSOCIATION

MINUTES OF THE FIRST SESSION.*

(The Chairman's Address and the Secretary's Report.)

The first session of the Section on Education and Legislation was called to order in Hotel Chalfonte, Atlantic City, Tuesday, September 5, 1916, at 3.30 P.M., by Chairman Frank H. Freericks, who stated that owing to the absence of associate officers, Wilber J. Teeters would preside while he read his address.

ADDRESS OF THE CHAIRMAN.

At San Francisco it was the pleasure of this Section to re-elect the Chairman, and also honor again its Secretary and one of the Associate Members. Those among us to-day who had the good fortune and, I am sure, the very great pleasure, of attending the convention at San Francisco on that extreme other side of the continent, and who perchance at that time happened into the opening session of our Section, may well wonder that there is to be an address from the Chairman of the Section. At least, I incline toward a suspicion that in my re-election there may have been the forethought that the Chairman, having said all that he might reasonably be expected to say for several years, would, when re-elected, give other members a chance. Our friends so minded, if any, shall not be altogether disappointed, but I serve notice now, that the distance from San Francisco to Atlantic City is very great indeed; that from August, 1915, to September, 1916, is more than a year, and finally that in this age of ours new happenings, new problems, the stride of progress which formerly seemed to crowd a year now almost fit into the day. In accepting the honor which you last year saw fit to again bestow, I fully determined to do my best in rendering service, not fully appreciating, I fear, that through the very hearty and generous coöperation of the membership, and particularly of the leaders in association work, it was the good fortune of the Section last year to present an exceptionally instructive and enlightening program. Would that all of you who last year found the distance too great might have not so found it. Yet, in so far as it concerns the reports and papers which the Section will entertain at this meeting, I am sure that those who were with us last year, and who unfortunately are not with us this year, will have equal cause for regret.

It would serve no good purpose for the Chairman to again discuss his rather extensively stated views on our educational and legislative problems in general. Augmented and supported, however, by the helpful thought which was advanced by Dr. William C. Alpers, Prof. J. U. Lloyd and Prof. Joseph P. Remington in their papers on "Qualification Requirements for Teachers," "Pharmaceutical Apprenticeship," and "Coöperation," respectively, I may now be pardoned for again pointing out that the future of retail pharmacy, at least, will be largely dependent upon more general and more complete education of the coming pharmacist on a level with the requirements exacted from the coming physician; and above all, upon the greater coöperation and better understanding between our colleges of medicine and colleges of pharmacy, which, in the interest of pharmacy, should be sought by the faculties of our colleges of pharmacy. Leaving the general aspects and the reference to conditions as we sought to present them last year, it will be my aim to bring to your minds at this time the broad, noteworthy trend of the past year in so far as it concerns our Section and its work.

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* Papers with discussions of the subjects will be printed apart from the minutes, hence only the title of the paper will be mentioned in the minutes.

The Pharmacopœia and the National Formulary.—The new United States Pharmacopœia and the new National Formulary are soon to be a part of the law of the land. They will present splendid opportunity for study to the pharmacist who means to keep abreast with the times. In that connection, the thought advanced by Dr. Joseph Weinstein last year should be in mind. A general study of the latest standards in pharmacy by physicians and pharmacists can without doubt be made deeply interesting and distinctly worth while. The various branches of the Association in their respective fields can make an effort of this kind the means of coming into closer touch with local medical societies. Every wide-awake person is interested to learn about the new, and if our A. Ph. A. branches and other local bodies, and where these do not exist, if the one or few members of the Association in every smaller community will prepare a program for discussing the more important new things to be found in the Pharmacopœia and National Formulary, they are certain to have splendid attention and are certain to create a greater appreciation for standard pharmaceuticals. Every physician when informed that the new Pharmacopœia and the new National Formulary are the official standards will feel obliged to know about them, and will be sure to accept a well-presented opportunity for knowing. Gatherings of pharmacists and physicians to consider the new works in pharmacy should be arranged for without delay, and a number of such general gatherings will be fully warranted for that purpose. Their success will, of course, largely depend upon a correct planning of the arrangements and subject matter. Incidentally they will start an opportunity for better acquainting the physician with the standard preparations of real merit, even though they be not new. By all means the pharmacists of every section of the country should arrange to accept this splendid opportunity, and the work might best be served by providing a Central Committee to map out a most suitable program, which then could be followed in the various centers. No doubt, such a committee, if deemed advisable, should act under the authority of the Association itself, or under the Section on Practical Pharmacy and Dispensing.

The new Pharmacopœia and the new National Formulary as the basis of legal requirement bring to mind also the propaganda which has been carried on in past years with ever increasing activity for the use of standard pharmaceutical products, largely under the auspices of the National Association of Retail Druggists. Splendid work in various sections of the country has been done, and the effort has been mostly, if not altogether, voluntary. Doubtless all are agreed that much more might be done; that the efforts can be better coördinated and less spasmodic. While, no doubt, such work brings its compensation in one form or another to those who carry it on, it is a question whether it should not be attempted along broader and more thorough-going lines which are beyond the individual and local effort. I submit for your most earnest consideration, that the State has a duty to perform in that connection. The Federal Government and the several states see fit to impose drug standards; they make them a law. Such drug standards are the result of much study and work on the part of the best minds in medicine and pharmacy. Presumably, yes admittedly, they contain the best; and preparations which find a place there-under should without doubt have a preference for medicinal use. Why is it that a sufficient and general knowledge, necessary knowledge if you please, should be made dependent upon the voluntary effort of pharmacists, and be at their expense? If the State prescribes a standard for the most useful medicines, if in fact it makes them a part of the law, why should it not be the duty of the State to inculcate knowledge and correct understanding of their existence and use among the men who should know of such existence and use? Our federal and state governments expend hundreds of thousands, and millions of dollars for experimental and educational work in agriculture; why may they not expend, at least, a fraction of such sums in educating the physicians to use the best for the treatment of disease in human beings? With all sincerity I urge that our Federal Foods and Drug Department and our several state boards of pharmacy should be authorized to, and should have adequate appropriations for carrying on the propaganda which is now dependent upon the unselfish and painstaking effort of individual pharmacists and their associations. A splendid and creditable work could thus be carried on for which the state not only ought to pay, but for which with proper understanding it will be glad to pay. It seems to me that this offers wonderful opportunity for authoritative advancement of legitimate pharmacy.

The Federal Revenue Narcotic Law.—The so-called Harrison Law has during the year met with at least one serious test of its validity, and in that respect has been found wanting. Possession of the narcotics has been held by the Supreme Court not to be in conflict with federal law, and to that extent Section 8 of the Harrison Act providing for the contrary has been held invalid. The unwarranted ruling of the Internal Revenue Department with reference to the exempted quantities in Section 6 as applied to physicians' prescriptions continues in force notwithstanding the most logical arguments and reasons showing that the ruling is not only contrary to the law, but also to common sense. The ruling and its continued enforcement evidences an obstinacy beyond comprehension. The splendid influence for good to be found in the law, the good which its enforcement has brought about, no one can deny. That the good largely has been the result, not of enforcing the law as it was found, but rather the result of an enforcement of unwarranted regulations which have the assumed character of law, is also more plainly apparent, and tends only to prove its weakness. It must be admitted that, if the authorities charged with the enforcement of the law may impose regulations, which are really added law, in order to accomplish its purpose at all, then they may with equal justice construe the law to suit their own purpose even though it be in conflict with its expressed provisions, and even though it places a burden where a burden should not be placed. In view of the certainty that the law must now have early amendment, it no longer serves a purpose to hesitate in pointing out the weak spots and the insufficiencies, for, if amendment is to be had, it should be real amendment, so that the value of the law will not be found in regulations which go beyond its letter and which really are without warrant. There continues, and has from the first existed, a very gross misunderstanding of the scope of the law and of the authority of the federal government in its enactment. Very generally the impression prevails that the so-called Harrison Law is purely a police measure, and even those who are charged with its enforcement seem to suffer from that view. Those who have such faulty conception overlook entirely that the relationship of the federal government to the traffic in narcotic drugs, or in anything else, is limited to the exercise of the taxing power and to interstate commerce transactions. Provisions which have the character of police regulations can be only included as an incident to the two federal functions mentioned. Necessarily the exercise of the police power as an incident merely means restrictions and limitations, and the scope of any incidental police power so exercised is bound to be confined to rather narrow limits. In my opinion, the law contains a number of provisions, not speaking at all of regulations promulgated under it, which cannot be defended under the Federal Constitution. The more important ones may be changed so as to retain their beneficent influence and so as to more nearly appear as necessary incidents to the exercise of the taxing power, but in their present form they cannot stand the test. Of course, it is thoroughly appreciated that many of the weak provisions in the law have been intended—are intended—for good, but as part of the law they are, nevertheless, faulty. To provide that one who pays the tax as a retail dealer in narcotics may sell only at retail on the written order of a doctor, is the making of a provision which cannot in reason be held necessary as an incident to the taxing power, or its exercise. To provide that a doctor cannot act in the discharge of his profession, cannot prescribe necessary medicines for his patient unless he would become registered as a dealer in drugs, in which he has absolutely no intent to deal, is to provide for an absurdity, and on a proper test it will be so held. The Federal Narcotic Law in the face of developments already had is bound to be amended, and it is now the duty of those directly concerned to see that it is properly amended so that it may be as effective as possible within the confines of the Federal Constitution. Meanwhile there is an urgent need for amendment of most state narcotic laws so as to supply those needed police regulations which are beyond the power of federal government and which cannot be claimed to be a necessary incident to the exercise of the taxing-power.

Stephens-Ashurst Bill.—The principle embodied in the original Stevens Bill has substantially been carried into what is now known as the Stephens-Ashurst Bill, and the campaign against price demoralization in proprietary articles has been vigorously continued. Some differences of opinion seem to have arisen between the advocates and supporters of this so necessary legislation, and, of course, differences of opinion among the advocates of any cause are bound to produce delay and harmful results. Undoubtedly the National Association of Retail Druggists is the original organized champion of some change in our federal laws to permit a reasonable and necessary price control, and its opinion and wishes in that respect should meet with a most thorough consideration on the part of all concerned. It has seemed to me that all proposed legislation on the subject to this time has served only to popularize the fundamental idea, to produce the necessary consideration, leading eventually to the enactment of some suitable law or amendment to existing law; and in my opinion the present Stephens-Ashurst Bill can only serve that purpose. On that account, difference of opinion should be earnestly avoided, and is entirely unnecessary, though those who are concerned more particularly with relieving evil conditions as they prevail in the drug trade should be prepared to submit a proper form of change in our laws at the opportune moment. Our Association should lend every assistance in advocating the principle of price maintenance.

Our Patent and Trade Mark Laws.—Your Committee on Patents and Trade Marks will make its report, and I do not mean to anticipate it in any manner. However, it seems within my province to bring more directly to your attention that the Paige Bill, known as H. R. 11967, to amend the laws relating to patents is finding very general support, and its chances for ultimate enactment seem constantly to improve. It is my purpose to bring to your attention a provision of the Paige Bill which seems to meet with very general approval, but which somehow does not appeal to my sense of justice and fairness. It is provided in the Paige Bill, that "In case any drug, medicine, medical chemical, coal-tar dyes or colors, etc., on which a patent for a definite process has been granted is not manufactured in the United States by or under the authority of the patentee within two years, etc., then said patentee shall have no rights under the Patent Laws of the United States as against any citizen of the United States who may import from other sources, or who may produce or manufacture or sell." Clearly this provision singles out medicines, etc., and coal-tar dyes or colors. Just why the patentee of coal-tar dyes or colors and of medicinal chemicals, etc., should be obliged to manufacture his article within the United States and the patentee of all other articles should not be so obliged, I do not fully understand. If it is unfair, inexpedient and improper to require that all patentees of all articles shall manufacture within the United States, then it would seem to be equally so with reference to those included within the provision. If the provision is dictated because of petty jealousy and because of a special selfish aim directed at the particular progress of one foreign nation, then it is unworthy and in conflict with American sense of fairness. Above all in that connection, I submit for your consideration that specially directed punitive measures are bound sooner or later to reflect and to react, and well may we give serious thought to this, for the day is sure to come when we will be leaders in such activity and industry, and then the unfairness and special punishment which we would now so thoughtlessly impose will be sure to revert upon us. This thought is submitted, not with the assurance that it is essentially correct, but in order to make certain that it will not be overlooked by those who are disposed to be fair and who have a due regard for the future.

Survey of the Pharmaceutical Teaching Institutions.—The Committee entrusted with this work last year has been continued, and we look for a further report from it through Chairman Hugh Craig. Every encouragement should be given this work as originally planned by Mr. Craig, because ultimately it will be of far reaching beneficent influence.

Publication of Formula.—There is a continued and growing advocacy for in some manner requiring the formula publication of proprietary medicines. The greatest interest is centered in the New York City Ordinance which prescribed such publication. With some show of reason those responsible for the New York City Ordinance at almost the last moment changed its requirements so as to provide, only, for a publication of potent drug content instead of a complete publication of formula. It seems, however, that in so changing the requirements to be more nearly fair, no attention whatever has been given to defining what shall constitute a potent drug, and thus for all practical purposes the effect of the ordinance remains as it was originally framed. It may be seriously doubted that, even though publication in some form be deemed necessary and correct, it should be attempted locally. It may also be seriously doubted that the advocates of such local legislation have at heart the public welfare as much as an injury to the proprietary medicine business, though they may contend that every injury to such business is in keeping with public welfare. It is submitted that primarily further restrictions upon the manufacture and sale of proprietary medicines should be general; that they should not go beyond the true need of public welfare, and finally that in so far as possible they should be without injury to established property rights, or what should be established property rights.

The National Association of Boards of Pharmacy.—This opportunity is accepted to acknowledge receipt of a set of resolutions which were adopted last year by the National Association of Boards of Pharmacy, which prove the interest of said Association in advanced Pharmaceutical Legislation. An active coöperation should be sought and maintained between this Section and the National Association of Boards of Pharmacy, because they can be distinctly helpful to each other in the study and in the dissemination of a correct understanding with reference to legislative needs concerning pharmacy.

A Federal Commission to Investigate and Report on the Status of Pharmacy and Its Needs.—Such a Commission has been proposed by the National Association of Drug Clerks. The aim evidently in mind is to ultimately secure by means of such a commission some sort of a national pharmacy law. The thought of a national pharmacy law is not new by any means, but the proposal to create a commission by act of Congress with the intent to ultimately secure federal legislation seems to be original. The rather heroic attempt to thus accomplish attracts attention. At the request of the National Drug Clerks Association, the proposition was submitted to the Voluntary Conference for Drafting Modern Laws Pertaining to Pharmacy, and this matter is referred to in a separate report on the work of the Conference. It seems proper, however, that it be here briefly discussed: Without speculating upon the possibility of securing favorable action on the part of Congress, we may well reflect upon the effect of such favorable action. The original proposition, as made, contemplates that such commission shall be constituted in a particular manner, evidently to safeguard the correct interest of pharmacy, but it must be in mind that just such specification of detail always has the least chance of being retained in ultimate legislation. The grave danger of having any such commission as is proposed, if there be some chance for securing it, will rest in the fact that it will be constituted of, or under the control of, authorities who lack practical knowledge and understanding. The proposition is involved with the possibility of much harm and without promise of compensating good. If there be need to do the work which it is proposed that such a commission shall do, then does it not appear to be more feasible that it act under the authority of the American Pharmaceutical Association rather than to be made dependent upon an Act of Congress, the final provisions of which no one can predetermine?

Now, as regards the end which is sought by means of such a proposed commission, it would appear that it is advanced without due regard for constitutional limitations which control our Federal Government. A national pharmacy law in the sense that it would control activities within the several states is an impossibility. The authority of the Federal Government over pharmaceutical activities cannot go beyond provisions which may govern in interstate commerce and in the employment of pharmacists in its army, navy and hospital service, or, more broadly speaking, in connection with exercising the prescribed functions of the National Government. In view of the fact that time and again the desirability of national legislation concerning pharmacy has been advanced, it may not be out of place if the subject matter have greater attention and thought. Uniformity in pharmacy legislation throughout the several states is one of the greatest needs. It does seem strange that a citizen qualified to practise pharmacy in one state shall not be permitted to practise it in all of the states. Admittedly, the Federal Government is without power to impose its authority on the several state authorities in this respect, but there is a possibility that the Federal Government may in connection with its own functions exercise an authority which under certain restrictive measures would be gladly accepted by the authorities of the several states. Such has been well demonstrated by the Federal Foods and Drug Act, and many other instances might be cited. In connection with its exclusive control over interstate commerce, the Federal Government might well prescribe the qualifications of those who would send pharmaceutical products from one state into another, and assuredly it may exercise such authority in connection with its employment of pharmacists. If pharmacy may so within limits be regulated under the authority of the Federal Government, it, of course, can provide a standard which would be acceptable to the most exacting state authorities, and thus with the usual regard of the several states for the action and authority of the Federal Government, a class of pharmacists might be created who would be authorized to follow their profession in every part of the country. Many important features need very careful consideration before any such plan be actively promoted, but it does seem worthy of consideration.

The Voluntary Conference for Drafting Modern Laws Pertaining to Pharmacy.—A separate report of the work of the Voluntary Conference will be made at a later session of the Section, and the matter is here referred to merely to make certain that the continuation of the work will find proper attention. It was recommended by the Chairman of the Section last year that the incoming officers of the Section be provided with a fund of one hundred dollars in order to continue the work, but since it was thought well to re-elect the Chairman, the matter of having such fund provided was not pressed, or, more correctly speaking, was waived. In my humble judgment, circumstances now require that the continued work of preparing a model for Modern Pharmacy Laws be frankly considered and referred to in plain words. Your Chairman has come to hold the impression that those who have primary control of the funds of the Association did not last year regard with favor the one hundred dollar appropriation which was then urged. I am not prepared to say that such appropriation is absolutely essential, because it will depend entirely upon whether it is thought well to carry the work to its completion, and, if so, who will be selected to do it. However, I can say with a sense of absolute conviction, that those in charge of the Association finances who last year did not regard with favor an appropriation of one hundred dollars, entirely failed to appreciate the possibilities of the work; they failed to appreciate the existing very general desire for modern model of laws, and the prevailing opinion for its need; and finally, I am afraid that they failed to appreciate the opportunity which our Association has in that connection to maintain its leadership and prestige. It is true that the thought of doing the work and of creating a Voluntary Conference having its members in every state, for that purpose, originated with the Chairman of the Section, who, having been honored, felt it his duty to undertake something that might be distinctly worth while. In that respect, the proposition had something of a personal character, and ordinarily it may be correct to allow a matter dependent upon personal initiative to rest at the point to which it is carried because of such initiative, but the almost immediate and warm response and the very general attention which this particular work has attracted convince me that, in the interest of our Association and in the interest of pharmacy, this is a case which should be carried beyond the point of individual initiative, and that the responsibility for completing the work should be shouldered by the Association with a good will and with a whole heart. A very fair start has been made, though it has been somewhat disappointing that some of the Voluntary Conference Members expected a complete draft of a Modern Law to come out of the mill in about two or three months, or in even a year, but with proper enlightenment the difficulty which was thus encountered can be met and overcome. It is clear to me now, however, that the responsibility of carrying on the work, if such is to be done, should not center in one person, but that a compact committee, of say five members, should be in charge of it together with the Voluntary Conference which has been created. So far as it concerns your Chairman, it gives him very great pleasure to say that the interest which was shown in response to his limited effort has been more than gratifying, and he feels himself fully compensated. If he has failed to convince others, he certainly has convinced himself that in the interest of our Association the work was proposed at exactly the proper time; and also, that the rank and file in pharmacy regard it to be needed work, and finally, that the rank and file in pharmacy throughout the country accept without question that it properly should be carried on under the auspices of the American Pharmaceutical Association, and the certain knowledge of that fact is particularly pleasing. For your earnest consideration I submit the recommendation that the Association, as such, be requested by this Section to appoint a committee of five of its members who together with the Voluntary Conference, already created, and as a part of the work of this Section, shall carry through the plan of preparing a draft of modern laws pertaining to pharmacy which may serve as a model and which shall be known as, "The Model of the American Pharmaceutical Association."

Respectfully submitted,

Frank H. Freericks.

THE CHAIR: We have heard this excellent and comprehensive address of your Chairman; what is your pleasure?

F. E. STEWART: I move that a committee of five be appointed to consider the recommendations of the Chairman, and I am sure that if we carry out the propaganda outlined therein we will not be accused of doing nothing for the retail drug trade in the United States.

Seconded.

Carried.

The Chair then appointed the following committee: E. A. Ruddiman, chairman, Tennessee; A. W. Linton, Washington; Claire Dye, Ohio; W. F. Rudd, Virginia; H. V. Arny, New York.

REPORT OF THE COMMITTEE ON CHAIRMAN'S ADDRESS.[1]

(1) It is the sense of your Committee that a Central Committee should be appointed by the incoming chairman of Section on Education and Legislation to consist of three members whose duty it shall be to provide a suitable program for acquainting the medical and pharmaceutical professions with the recent revision of U. S. P.

(2) The Committee favors the general idea as expressed by our chairman concerning public aid for dissemination of pharmaceutical knowledge. We suggest, however, that the specific application of such aid be along two lines:

(*a*) The admirable pamphlets published by the United States Public Health Service.

(*b*) The establishment by the several States of pharmaceutical experiment stations similar to that already established in Wisconsin.

(3) The Committee heartily endorses the following recommendations made by the Chairman:

"I submit the recommendation that the Association as such be requested by this Section to appoint a Committee of five of its members who, together with the Voluntary Conference, already created, and as a part of the work of this Section shall carry through the plan of preparing a draft of modern laws pertaining to pharmacy which may serve as a model and which shall be known as 'The Model of the American Pharmaceutical Association.'"

Respectfully submitted,

E. A. RUDDIMAN, *Chairman.*
WORTLEY F. RUDD, *Secretary.*

THE CHAIRMAN: The next order of business is the report of Secretary R. A. Kuever.

REPORT OF THE SECRETARY OF THE SECTION ON EDUCATION AND LEGISLATION OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

GENTLEMEN: The report of your secretary this year is largely statistical. It has been compiled from information received directly from the heads of the various institutions of pharmaceutical learning and from the secretaries of the various state boards of pharmaceutical examiners. An effort has been made to compile it in such a way that reference may easily be made.

Regarding the work of the schools of pharmacy much interesting information has been found. The legislative changes are very few this year because so few general assemblies meet during the even years.

This report is divided into two divisions: Educational Advances and Legislative Changes.

A special effort has been made to make this report complete, covering every state in the Union and every recognized educational institution. Replies, however, were only obtainable from eighty percent of the schools. Why twenty percent should refuse or neglect to give the information desired is not a question your secretary wishes to answer.

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[1] This report was adopted during the second session, but for convenient reference is printed here. The recommendations were favorably acted upon and referred to the Association.

EDUCATIONAL ADVANCES.

The following questions, in outline form, were sent to the dean of each school of pharmacy:

Date......................

1. *Name of school* ....
2. *Number of students,* 1915–16..
3. *Number of graduates,* 1915–16..
4. *Minimum entrance requirements for* 1916–17...
5. *Educational advances adopted during the past year* ....
6. *Is military training required?* ....
7. *If so, when adopted?* ....

..............................DEAN.

The following are the replies, alphabetically arranged, according to the states in which the schools are located:

ALABAMA:

(1) 1. Department of Pharmacy, Alabama Polytechnic Institute.
2. Fifty-two.
3. Sixteen.
4. Two years of high school work or its equivalent.
5. No report.
6. Yes.
7. 1872.

(2) 1. School of Pharmacy, Birmingham Medical College.
2. Reported discontinued.

(3) 1. Department of Pharmacy, University of Alabama.
2. No report.

CALIFORNIA:

(4) 1. California College of Pharmacy, University of California.
2. Ninety-seven.
3. Thirty-three.
4. Two years of high school work for Ph.G. degree; four years of high school work for Ph.C. and Phar.B. degrees.
5. A new, elaborate, curriculum for the course leading to Ph.C.
6. It is not.

(5) 1. College of Pharmacy University of S. California. No report.

(6) 1. Department of Pharmacy, College of Physicians and Surgeons of San Francisco.
2. No report.
3. No report.
4. Two years of high school work.
5. None.
6. No.
7. Twelve years ago.

COLORADO:

(7) 1. School of Pharmacy, University of Colorado.
2. Thirty-two.
3. Six.
4. Four years of high school work.
5. Just a gradual raising of standards.
6. No, but should be.
7. A number of the students are members of the National Guard.

DISTRICT OF COLUMBIA:

(8) 1. National College of Pharmacy, George Washington University.
2. Fifty-four.
3. Fifteen.
4. Four years of high school work or the equivalent.
5. Quantitative determination of pharmacopœial products purchased from local pharmacies.
6. Optional.
7. 1915.

(9) 1. Pharmaceutic College, Howard University.
2. Sixty.
3. Seventeen.
4. The completion of a four-year course in an accredited high school.
5. Raising the requirements from two years of high school work to the completion of a four-year course in an accredited high school.
6. No.

GEORGIA:

(10) 1. Atlanta College of Pharmacy. No report.

(11) 1. Pharmacy Department, University of Georgia.
2. Fifteen.

3. Seven.
4. Eight units or two years of high school work.
5. A course in accounting for 1916-17 has been added—three hours per week for thirty-six weeks.
6. No, but under advisement.

(12) 1. School of Pharmacy, Mercer University.
2. Twenty-seven.
3. Eight.
4. Two years of high school work for the two years' course and four years for the four years' course.
5. Commercial pharmaceutical course added. Entrance requirements increased for the two years' course to three years of high school work which goes into effect in 1917.
6. No.

(13) 1. Southern College of Pharmacy.
No report.

ILLINOIS:

(14) 1. School of Pharmacy, Northwestern University.
2. Seventy-two.
3. About thirty-eight.
4. Fifteen units of accredited high school work.
5. Pharmaceutical Chemist Course increased to three years of eight and one-half months each.

(15) 1. School of Pharmacy, University of Illinois.
2. One hundred and ninety-nine.
3. Forty-three.
4. Graduation from high school of accredited grade (four years' course of fifteen Illinois units of credits).
5. Advanced from two to four years of high school entrance.
6. No.

(16) 1. Central States College of Pharmacy, Loyola University.
No report.

INDIANA:

(17) 1. School of Pharmacy, Purdue University.
2. Sixty-seven.
3. Thirty-six Ph.C. graduates; five B.S. graduates.
4. High school graduation or its equivalent.
5. School will dispense the prescriptions written by the University physicians. Commercial pharmacy added.
6. Yes, for the four-year students.
7. Several years ago.

(18) 1. School of Pharmacy, University of Notre Dame.
2. Thirteen.
3. Four.
4. One year of high school work for Ph.G.; two for Ph.C.; and four years for B.S. in Ph.
5. No report.
6. For the first two years.
7. 1912.

(19) 1. School of Pharmacy, University Valparaiso.
2. About one hundred and seventy-five.
3. Seven Ph.C.; thirty-seven Ph.G.
4. Two years of high school work for Ph.G. Four years for Ph.C. and B.S. in Pharm.
5. The B.S. in Pharmacy has been added.
6. No.

(20) 1. Indianapolis College of Pharmacy.
2. Sixty.
3. Twenty-nine.
4. One year of high school work or its equivalent.
5. No report.
6. No.

(21) 1. Tri-State College of Pharmacy.
No report.

IOWA:

(22) 1. College of Pharmacy, State University of Iowa.
2. Fifty-seven.
3. Twenty-three Ph.G.; two Ph.C.
4. Four years of accredited high school work.
5. Advanced from three to four years of high school work for entrance.
6. Yes.
7. 1916.

(23) 1. Highland Park College of Pharmacy.
2. Eighty-five.
3. Thirty.
4. One year of high school work for Ph.G.; four for Ph.C.

5. Advanced from two to four years of high school work for Ph.C. course.
6. No.

KANSAS:

(24) 1. School of Pharmacy, University of Kansas.
2. Sixty-five.
3. Eighteen.
4. Four years of high school work from an accredited school.
5. Principally in graduate courses. Also business course.
6. No.

(25) 1. Louisville College of Pharmacy.
2. Sixty.
3. Sixteen.
4. One year of high school work.
5. Addition of Phar.C. and Phar.D. courses.
6. No.

LOUISIANA:

(26) 1. New Orleans College of Pharmacy.
2. Fifty-eight.
3. Twenty-seven.
4. Completion of first year of high school or its equivalent.
5. No report.
6. No.

(27) 1. School of Pharmacy, Tulane University of Louisiana.
2. Thirteen.
3. One.
4. Three years of high school work.
5. None.
6. No; physical training, yes.
7. 1912.

MAINE:

(28) 1. Department of Pharmacy, University of Maine.
2. Twenty-two.
3. Seven.
4. Seventeen years of age, three years of high school work or its equivalent.
5. Changed the entrance requirements from two to three years of high school work. By 1919 a full high school course will be required.
6. Only of the B.S. students (four years).
7. Has always been required of the four-year men.

MARYLAND:

(29) 1. Department of Pharmacy, University of Maryland.
2. Ninety-nine.
3. Twenty-one.
4. One year of standard high school work including one language other than English.
5. No report.
6. No.

MASSACHUSETTS:

(30) 1. Massachusetts College of Pharmacy.
2. Two hundred and seventy.
3. Thirty-one Ph.G.; seven Ph.C.
4. Completion of one year or more of a high school course, or its equivalent.
5. A loan fund established for needy and worthy students.
6. No.

MICHIGAN:

(31) 1. College of Pharmacy, University of Michigan.
2. One hundred and twenty-six.
3. Fifteen.
4. Four years' work in an approved high school.
5. No report.
6. No.

MINNESOTA:

(32) 1. College of Pharmacy, University of Minnesota.
2. One hundred and five.
3. Thirty-three.
4. Full four years' high school graduation.
5. Beginning with 1916-17 the regular course will cover three full University years.
6. Yes.
7. 1915-16.

MISSISSIPPI:

(33) 1. Department of Pharmacy, University of Mississippi.
2. Forty-five.
3. Twenty-two.
4. Two years of completed high school work; four years for the Ph.C. course.
5. 1917-18 four years of completed high school work will be required for all degrees.
6. No.

MISSOURI:

(34) 1. St. Louis College of Pharmacy.
2. One hundred and seven.
3. Forty.
4. One year of high school.
5. None.
6. No.

(35) 1. Kansas City College of Pharmacy and Natural Sciences.
2. Fifty-eight.
3. Twenty-nine.
4. Two years of high school work—seventeen years of age.
5. From one to two years of high school work.
6. No.

(36) 1. School of Pharmacy, National University of Arts and Sciences.
No report.

MONTANA:

(37) 1. School of Pharmacy, University of Montana.
2. Thirty.
3. Eleven.
4. Four years' high school or its equivalent.
5. Increase from three to four years of high school work for entrance to degree course.
6. No. May be optional.
7. Steps are being taken now to provide this training which may be compulsory.

NEBRASKA:

(38) 1. College of Pharmacy, Creighton University.
2. Sixty-nine.
3. Twenty-three.
4. One year of high school work.
5. Microscopical examination of drugs has been made to cover two full years of laboratory work. Service in the prescription dispensary of the medical school has been changed from an opportunity to a requirement. Beginning in the fall of 1916 a laboratory course in the manufacturing of organic pharmaceuticals will be initiated.
6. No.

(39) 1. College of Pharmacy, University of Nebraska.
2. Thirty-six.
3. Nine.
4. Four years of high school work.
5. No report.
6. Of four-year men only.
7. With the establishment of the University.

NEW JERSEY:

(40) 1. Department of Pharmacy, College of Jersey City.
2. Eleven.
3. Two.
4. One year of high school.
5. Preliminary requirements have been raised to one year high school for Ph.G., Phar.M. and four years of high school for Ph.C.
6. No.

(41) 1. New Jersey College of Pharmacy.
2. One hundred and fifteen.
3. Forty-one.
4. Eighth grade grammar certificate of graduation.
5. None.
6. No.

NEW YORK:

(42) 1. Albany College of Pharmacy, Union University.
2. One hundred and six.
3. Forty-seven.
4. Fifteen regent counts—the equivalent of one year of high school work.
5. This requirement will be changed. Beginning with the session of 1918-19 thirty counts will be required.
6. No.

(43) 1. Brooklyn College of Pharmacy.
2. Three hundred and eighteen.
3. Thirty-five.
4. Fifteen regent counts.
5. None.
6. No.

(44) 1. Buffalo College of Pharmacy, University of Buffalo.
2. One hundred and seventy-three.
3. Fifty-two.
4. Good moral character—seventeen years of age—one year successfully completed work in high school.

5. Practical laboratory examination for each pharmacy class at mid-term and end of session under state board conditions.

(45) 1. College of Pharmacy, City of New York, Columbia University.
2. Five hundred and five.
3. One hundred and sixty-two.
4. One year of high school work (15 regents' counts), and seventeen years of age.
5. Thirty hours of lecture and thirty hours of practical work in accounting in first year. Candidates for B.S. degree must meet all requirements of college entrance examination board.
6. No.

(46) 1. College of Pharmacy, Fordham University.
2. Eighty-four.
3. Thirty-two.
4. One year of high school work or its equivalent.
5. After January 1st, 1918, not less than two years of high school work or its equivalent.
6. No.

(47) 1. School of Pharmacy, Syrian Protestant College.
No report.

NORTH CAROLINA:

(48) 1. Leonard School of Pharmacy, Shaw University.
No report.

(49) 1. School of Pharmacy, University of North Carolina.
No report.

NORTH DAKOTA:

(50) 1. School of Pharmacy, North Dakota Agricultural College.
2. Thirty-five.
3. Eight.
4. Two years of high school work.
5. No report.
6. Yes.
7. Required by law.

OHIO:

(51) 1. Cleveland School of Pharmacy, Western Reserve University.
2. One hundred and eight.
3. Twenty-two.
4. Two years of high school work.
5. A two years' course of not less than 1,200 hours leading to the degree Ph.G. A third-year course of not less than 800 hours, about one-half of which must be devoted to chemistry, leading to the degree Ph.C. An average of 75 percent, and a satisfactory thesis must be presented for this degree. An additional course of not less than 1,000 hours, of which one-third or more must be devoted to original investigative work and for which a thesis and examinations before Faculty and Board of Trustees must be made and for which the degree, Doctor of Pharmacy, is given.
6. No.
7. May 15, 1916.

(52) 1. College of Pharmacy, Ohio Northern University.
No report.

(53) 1. College of Pharmacy, Ohio State University.
2. Ninety-four.
3. Five four-year, and twenty-one two-year men.
4. Two years of high school work for the two years' course and high school graduation for the four years' course.
5. A course in commercial pharmacy has been added.
6. Yes.
7. 1885.

(54) 1. Toledo College of Pharmacy, Toledo University.
No report.

(55) 1. Cincinnati College of Pharmacy.
2. Forty-eight.
3. Thirty-nine.
4. Two years of high school work.
5. No report.
6. No report.
7. No report.

OKLAHOMA:

(56) 1. School of Pharmacy, State University of Oklahoma.
2. Seventy-four.
3. Fifteen.

4. Two years of high school work for Ph.G. and four years of high school work for Ph.C. and B.S.
5. Course now meets requirements of the New York Department of Education from which registration was received.
6. No.

OREGON:

(57) 1. School of Pharmacy, North Pacific College.
2. Thirty-eight.
3. Nineteen.
4. Two years of high school work.
5. No report.
6. No.

(58) 1. Course in Pharmacy, Oregon Agricultural College.
2. Seventy.
3. Ten B.S. and two Ph.G.
4. Four years of high school work. For the vocational course which is offered for the first time this year, two years of high school is required.
5. Four years of high school work as entrance to all courses excepting the vocational course.
6. Yes.
7. 1884.

PENNSYLVANIA:

(59) 1. Pittsburgh College of Pharmacy, University of Pittsburgh.
2. Two hundred and twenty-two.
3. Eighty-nine.
4. Two years of high school work.
5. Entrance requirements raised from one to two years.
6. No.

(60) 1. Department of Pharmacy, Medico-Chirurgical College.
No report.

(61) Pharmaceutical Department, Temple University.
No report.

(62) 1. Philadelphia College of Pharmacy.
2. No report.
3. No report.
4. No report.
5. Entrance requirements are to be increased from one year of standard high school work to two years or its equivalent, beginning with the session 1917-18.
6. No report.

RHODE ISLAND:

(63) 1. Rhode Island College of Pharmacy and Allied Sciences.
No report.

SOUTH CAROLINA:

(64) 1. College of Pharmacy, Medical College, State, South Carolina.
2. Twenty-two.
3. Twelve.
4. A minimum age of seventeen years and evidence of the satisfactory completion of education beyond the eighth grade equivalent to fifteen counts.
5. None.
6. No.

SOUTH DAKOTA:

(65) 1. Department of Pharmacy, South Dakota State College of Agriculture and Mechanic Arts.
2. Thirty-three.
3. Nine.
4. Four years of high school work.
5. None.
6. Yes, pharmacy students are required to take military training the same as other students.
7. 1887.

TENNESSEE:

(66) 1. Department of Pharmacy, Vanderbilt University.
2. Thirty-four.
3. Fifteen.
4. Fourteen Carnegie units—the equivalent of four years of high school work.
5. Entrance requirements advanced from three to four years. Work for a Ph.C. degree now covers three years.
6. No.

(67) 1. School of Pharmacy, University of Tennessee.
2. Fifteen.
3. Four.
4. Three years of high school work or its equivalent.
5. Ninety-six hours of physics added to the course, making the total number of hours for the two years' course 1635.
6. No.

(68) 1. Meharry Pharmaceutical College, Walden University.

2. Forty-eight.
3. Seventeen.
4. Two years of high school work which must include one year each of Latin and physics.
5. No report.
6. No.

TEXAS:

(69) 1. School of Pharmacy, Baylor University.
2. Forty-four.
3. Five.
4. One year of high school.
5. Expect to raise requirements in fall of 1917.
6. No.

(70) 1. School of Pharmacy, University of Texas.
2. Fifty-two.
3. Twenty.
4. Eight high school units.
5. None.
6. No.

(71) 1. College of Pharmacy, Department Southern Methodist University.
Report discontinued.

VIRGINIA:

(72) 1. School of Pharmacy, Medical College of Virginia.
2. Ninety-five.
3. Twenty-five.
4. Satisfactory completion of one year of high school work for the Ph.G. degree and graduation from high school for the degree of Ph.C. The former is a two years' course and the latter a three-year one.
5. Minimum entrance requirements for 1917–18 will be two years of high school work.
6. No.

WASHINGTON:

(73) 1. College of Pharmacy, University of Washington.
2. Sixty.
3. Twenty-five from the two-year course. Two from the four-year course. One from the five-year course.
4. Four years of high school work. Students over eighteen years of age, who have at least two years of high school work, are admitted as special students but are not candidates for a degree.
5. Degree for two-year course changed to Ph.G. Three-year course introduced leading to the degree Ph.C.
6. Yes.
7. 1909.

(74) 1. Department of Pharmacy, State College of Washington.
2. Forty-three.
3. Twelve.
4. Two years of high school work for the Ph.G. degree, and four years for the Ph.C. and B.S. in pharmacy degrees.
5. A three-year course added.
6. Yes.
7. When the College was founded, twenty-five years ago.

WEST VIRGINIA:

(75) 1. Courses in Pharmacy, School of Medicine, West Virginia University.
2. Twenty-one.
3. None.
4. Four years of high school work or its equivalent; students are admitted as special students who have had at least two years of high school work and two years of practical experience, but they are not candidates for degrees.
5. Certificate of Graduate in Pharmacy changed to degree of Ph.C. Three-year course installed leading to the degree Ph.C., and a four-year course added which leads to the degree B.S. (Pharmacy).
6. Yes—all under twenty-three years of age.
7. Conforms to general University rules which were in effect when the department was established.

WISCONSIN:

(76) 1. Course in Pharmacy, University of Wisconsin.
2. Thirty-seven.
3. Ten.

4. One year of high school work for the two-year course and four years of high school work for the four-year course.
5. No report.
6. For men in the four-year course, but not for those in the two-year course.
7. It has always been required of four-year University students.

(77) 1. School of Pharmacy, Marquette University.
2. Forty.
3. Thirteen.
4. Two years of high school work and eighteen years of age.
5. A new medical dispensary has been equipped and a medicinal plant garden has been started.
6. No.

EDUCATIONAL SUMMARY.

At the present time there are seventy-three more or less generally recognized schools of pharmacy in the United States, of which forty-two hold membership in the American Conference of Pharmaceutical Faculties. It is to be regretted that, in addition, there are about one-third as many more unrecognized schools, which have no entrance requirements and give no regularly outlined courses of instruction. They are the so-called "plugging courses" and "diploma mills" which have for their apparent purpose the preparation of young men and women for the licensing examinations. Such institutions should not be tolerated. Without standards they have resulted in too large a number of druggists in many of the states, and the small amount of pharmaceutical practice thus obtained by the average druggist has made it necessary for many to engage chiefly in closely related commercial activities. Hence pharmaceutical service to the people has suffered and the original intent of the state in creating and licensing a group of citizens to render exclusive and expert pharmaceutical service, has been largely defeated.

In 1910 a motion prevailed before this association favoring the inspection of pharmaceutical schools by the Carnegie Foundation, and the statement was made that such inspection would undoubtedly be undertaken at once. Thus far, however, no such investigation has been made, so it would seem that this association should assume the responsibility of having it begun immediately. Such an investigation would undoubtedly reveal conditions similar to those which existed in the medical institutions proving that many of the schools are not adequately prepared, with either laboratory equipment or teaching staff to give proper pharmaceutical instruction.

About one-sixth of the states in the Union now require a pharmaceutical diploma for the licensing examination either by board ruling or by law. In several states bills making graduation a prerequisite will be introduced this coming winter. The number of states making such requirements will gradually increase and it will give rise to granting diplomas for inferior work unless an investigation and standardization of pharmaceutical schools is undertaken.

During the past fiscal year three schools have been discontinued. The School of Pharmacy, Birmingham Medical College, was absorbed by the Department of Pharmacy, University of Alabama, at Mobile. The Department of Pharmacy, Southern Methodist University at Dallas, Texas, has been indefinitely discontinued. The Department of Pharmacy, Medico-Chirurgical College was merged with the Philadelphia College of Pharmacy.

The following data obtained from the reports of the various schools are of interest in this connection: Thirty-five percent require only one year of high school work, or its equivalent, for admission—thirty-three percent demand two years of preparatory work—five percent require three years, and twenty-six percent require the completion of four years of preliminary education.

Those requiring one year:

School of Pharmacy, University of Notre Dame.
Indianapolis College of Pharmacy.
Highland Park College of Pharmacy.
Louisville College of Pharmacy.
New Orleans College of Pharmacy.
Department of Pharmacy, University of Maryland.
Massachusetts College of Pharmacy.
St. Louis College of Pharmacy.
Department of Pharmacy, College of Jersey City.
New Jersey College of Pharmacy.
Albany College of Pharmacy.
Brooklyn College of Pharmacy.
Buffalo College of Pharmacy.
College of Pharmacy, City of New York.
College of Pharmacy, Fordham University.
Philadelphia College of Pharmacy.
School of Pharmacy, Baylor University.
College of Pharmacy, Medical College of State of South Carolina.
School of Pharmacy, Medical College of Virginia.
Course in Pharmacy, Creighton University.

Those requiring two years:

Department of Pharmacy, Alabama Polytechnic Institute.
California College of Pharmacy, University of California.
Department of Pharmacy, College of Physicians and Surgeons, San Francisco.
Pharmacy Department, University of Georgia.
School of Pharmacy, Mercer University.
School of Pharmacy, Valparaiso University.
Department of Pharmacy, University of Mississippi.
Kansas City College of Pharmacy and Natural Sciences.
School of Pharmacy, North Dakota Agricultural College.
Cleveland School of Pharmacy, Western Reserve University.
College of Pharmacy, Ohio State University.
Cincinnati College of Pharmacy.
School of Pharmacy, State University of Oklahoma.
School of Pharmacy, North Pacific College.
Course in Pharmacy, Oregon Agricultural College.
Pittsburgh College of Pharmacy, University of Pittsburgh.
Meharry Pharmaceutical College, Walden University.
School of Pharmacy, University of Texas.
Department of Pharmacy, State College of Washington.
School of Pharmacy, Marquette University.

Those requiring three years:

School of Pharmacy, Tulane University of Louisiana.
Department of Pharmacy, University of Maine.
School of Pharmacy, University of Tennessee.

Those requiring four years:

School of Pharmacy, University of Colorado.
National College of Pharmacy, George Washington University.
Pharmaceutical College, Howard University.
School of Pharmacy, Northwestern University.
School of Pharmacy, University of Illinois.
School of Pharmacy, Purdue University.
College of Pharmacy, State University of Iowa.
School of Pharmacy, University of Kansas.
College of Pharmacy, University of Michigan.
College of Pharmacy, University of Minnesota.
School of Pharmacy, University of Montana.
School of Pharmacy, University of Nebraska.
Department of Pharmacy, South Dakota State Agricultural College.
Department of Pharmacy, Vanderbilt University.
College of Pharmacy, University of Washington.
Courses in Pharmacy, School of Medicine, West Virginia University.

Eight of the above-mentioned institutions, or thirteen percent, have increased their entrance requirements by one year or more of high school work during the past year. They are:

Department of Pharmacy, Alabama Polytechnic Institute.
Pharmaceutic College, Howard University.
School of Pharmacy, Mercer University.
School of Pharmacy, University of Illinois.
Department of Pharmacy, University of Maine.
Kansas City College of Pharmacy and Natural Sciences.
School of Pharmacy, University of Montana.
Pittsburgh College of Pharmacy, University of Pittsburgh.

During the school-year 1915–16 four thousand, seven hundred and fourteen students were enrolled in the sixty schools given above and one thousand, two hundred and ninety-six students were graduated. Assuming that it is fair to base the total number of pharmaceutical students in the United States, during the past school-year, on the statistics obtained from the eighty percent of schools, the total number would be five thousand, six hundred and fifty-seven, and the total number of graduates for the year, one thousand, five hundred and fifty-five.

Ten years ago, in eighty pharmaceutical schools, five thousand, nine hundred and twenty-nine students were enrolled, and one thousand, eight hundred and thirty-six were graduated.

Special attention should be called to the fact that the College of Pharmacy, University of Minnesota, has adopted a three-year minimum course of instruction which goes into effect this year.

The College of Pharmacy, University of Iowa, was a pioneer this year in conducting a druggists' conference. The program consisted of lectures and discussions on pharmaceutic business principles and salesmanship. It was open, without cost, to the druggists of the state and the students of the school. The attendance was good, considering that the idea was new, and from the interest shown it has been decided to give such a conference annually. A special effort will be made this coming year to acquaint the druggists of the state with the ninth revision of the United States Pharmacopœia.

If an excuse were needed for such a conference it could be met by stating that many men are better pharmacists than they are business men. The underlying principles of systematic organization and better salesmanship can be outlined in a few days' work, and if the state can co-operate in building up a better business and knowledge of salesmanship, it is well worth while.

The following topics were presented by experts in their respective fields: "The Modern Drug Store," "The Druggist and His Trade," "The United States Pharmacopœia," "Knowing Your Goods," "Effective Advertising," "The Evolution of the Apothecary Shop," "Salesmanship," "How I Reorganized My Store and What Came of It," "Efficiency in a Drug Store," "A System of Accounts for Drug Stores," etc.

LEGISLATIVE CHANGES.

During the past fiscal year there have been very few legislative changes affecting the profession of pharmacy. A comparatively small number of states have legislative sessions in the even years. A great deal of pharmaceutical legislation is being planned for the coming winter both by the various state associations and the pharmaceutical examining boards. Nineteen-fifteen was probably the most successful year American pharmacy has ever had from a legislative standpoint. Many states were successful in securing some very desirable laws as well as defeating undesirable bills. It is to be hoped that in 1917, in the various sessions, pharmacy will fare as well or a little better, if possible. This can only be accomplished by having thoroughly organized pharmaceutical bodies—especially active legislative committees in the various state associations—working county pharmaceutical societies, and by having each individual pharmacist constantly on the firing line. Pharmacists should assume the offensive rather than the defensive. The enemies of the pharmaceutical profession are constantly mobilizing their forces. There will not be a single legislative session this coming year in which some inimical measures will not be introduced. It will take an equally well mobilized pharmaceutical force to defeat such bills. And such mobilization will require the enlistment of every pharmacist in the profession.

The following is a summary of legislative changes during the past fiscal year:

Arizona.—The Legislature convened during the month of July, at which time the state association attempted to secure some pharmaceutical legislation but was unsuccessful. No change in this state, therefore, since May, 1913.

Kentucky.—The general assembly convened but no changes were made in the laws pertaining to pharmacy.

Maryland.—The general assembly convened. No changes were asked for and no changes were made.

Massachusetts.—This state had one important change in the law which broadened the definition of the drug business from the sale of narcotics and the dispensing of prescriptions to the sale and keeping and exposing for sale of all potent drugs, including narcotics and the dispensing of prescriptions.

Mississippi.—A law has been passed which provides that the governor can appoint only men to the state board of pharmacy who shall have had not less than five years of practical experience as retail pharmacists and who shall be in addition graduates of a recognized college of pharmacy. In Section 22 of the same act a recognized college is defined as one holding membership in the American Conference of Pharmaceutical Faculties.

Missouri.—The only change in this state, since 1909, is relative to the sale of narcotics. Section 5786 modifies the narcotic law so that it will conform to the Harrison Anti-narcotic Law.

New Jersey.—In this state the legislature meets every year. During the past five years one new law was proposed and it was turned down. No change since 1915.

New York.—Section 233 has been amended to read "3. Had prior to beginning the first year of study in the school 30 units or the equivalent" in place of "15 units." This refers to entrance requirements.

Oklahoma.—A meeting of the Oklahoma Pharmaceutical Association was recently held at Sulphur, at which time resolutions were passed to introduce a bill during the next meeting of the legislature, raising the fee for annual renewals from two dollars to two and one-half and have the board of pharmacy remit the fifty cents to the Association in order that the Association might be self-sustaining and have money to hold meetings and operate successfully.

Rhode Island.—The general assembly convened but no changes were made in the pharmaceutical laws.

Texas.—No changes since 1907. Secretary Walker says: "We have now prepared amendments to our present law which will be presented at our next meeting of the legislature in January, 1917, and we feel almost assured of a successful passage of our proposed amendments."

Virginia.—The legislature was in session but no laws were passed which affect the practice of pharmacy.

Washington.—No change since 1909.

Respectfully submitted,
R. A. Kuever, *Secretary.*

Moved by L. E. Sayre that this report be received, and that the thanks of the Association be extended to the Secretary. Seconded by M. I. Wilbert.

Motion carried.

Education has improved the pharmacist just as it has raised the standard of all callings. Organization has become more perfect, and there is certainly a greater tendency amongst members of the craft to put aside petty jealousies and work together for the good of all. The most perplexing problem, and one which is still unsolved, is, How to restrain the man who is not amenable to moral suasion, and still persists, for reasons best known to himself, in playing a lone hand. Some of these "lonely-furrow" pharmacists are the best of good fellows individually, but no arguments can make them see that modern conditions of industrial life have made it well-nigh impossible for the individual to ignore the principle expressed in the old adage, "United we stand—divided we fall." Pursuing the argument further, there is the man who, devoid of ethical considerations, embarks systematically on a line of conduct which brings discredit on the craft as a whole. His sole object in life is to make money. He steers as close to the wind as it is possible to do. He takes risks which most men decline under any circumstances to run. He gambles on the chance of not being found out. How are such men to be restrained? It is for our pharmaceutical leaders to find the remedy.—*Austral. Jour. of Pharmacy.*

A PLEA FOR A PERMANENT PROFESSIONAL TENURE IN PHARMACY.*

BY C. FERDINAND NELSON.[1]

There can be little doubt but that the American pharmacist is rapidly losing, if he has not already lost, his sense of genuine professionalism and professional pride and, with these, his very birthright in matters vitally important to him.

Just how this has come about is, indeed, hard to say. It may well be that years and decades of close confinement and work behind the counter or prescription case have tended to soften his spine and thus rob him of the strength which should be his. It may be that his life-long habit to serve his customer early and late, in and out of season, for little or nothing has so modified his nature and drained his nervous resources that he sees and feels that nothing by way of reward can possibly come to him. Worst of all, it may be that he has drugged himself into the feeling that what is is right and always will be so; that the calling he has chosen is static rather than dynamic in its nature; that his profession, unlike any other, can remain where it always has been without undergoing atrophy and decay. Whatever causes may account for his lethargy we must admit that they exist and for cure nothing but heroic treatment will avail.

It seems at once axiomatic and incontrovertible that if pharmacy is to live and flourish the men and women who practise it must consider themselves as belonging to a profession and not a trade or simple business, as too many do to-day. This point cannot be too strongly emphasized since the briefest analysis at once shows that whatever monopoly the pharmacist now enjoys from the State, in the compounding and dispensing of drugs and chemicals, comes by virtue of a supposed professional knowledge and skill and for this reason only. The pharmacist must then feel proud of his calling if he would keep it, and show this pride by aspiring and demanding of the public the rights and privileges now accorded other professions, such as law, medicine and dentistry. This does of course not mean that the pharmacist should or needs conduct his business in any way radically different from that now done by our best pharmacists. There will always of necessity be a large and important side to any calling, however professional it may be, that must concern itself with the actual handling and dispensing of commodities. He should, however, clearly recognize that the lawyers, doctors and the dentists are, like himself, also engaged in business, and yet they are considered members of a profession. He should also honestly admit to himself that they have and show a distinct professional pride while he stands vaguely by wondering if such a thing is really proper for him to have. The pharmacist should feel that in no essential does his calling differ from theirs except that his office is larger and the business side of his work greater and more obvious. His service to the public is no less on that account, and this criterion must be and really is the measure and definition of the word professional.

That pharmacy from the very character of the things with which it concerns itself must be a profession and really is one a majority of us sincerely believe, even if we are forced to admit that ultra-commercialistic tendencies are constantly gripping at our throats. The thing we utterly fail, or are loath, to see, however, is that a great deal of work and energy is needed in keeping pharmacy abreast of the times—in making it evolve, grow and develop with the same rapidity that the profession of medicine now is doing.

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*Read before the Section on Education and Legislation, Atlantic City, A. Ph. A. meeting.

[1] Associate Professor of Physiological Chemistry, University of Kansas, Lawrence, Kansas.

I am not unmindful of the fact that our educational requirements have increased tremendously during the last two decades; that Boards of Pharmacy have constantly increased their requirements in examinations and that the time of apprenticeship has been lengthened. Perhaps along these lines no more can be expected of us than has actually been accomplished. Our weakness does not lie here but rather in our inability to develop a proper " esprit de corps " within our membership. We are not proud enough of the calling we have chosen to demand the rights and privileges that we should have as members of a profession. *It doesn't mean enough to us to be a pharmacist; to pass the State Board and then forget all about it is our present average professional desire and ambition.* A moment's reflection will suffice to show us that we cannot stop here if pharmacy is to be what we actually wish it to be.

In no other single particular have pharmacists been more backward in asserting themselves and in no single instance has the forward march of pharmacy been so much retarded as by our present archaic system of Annual Renewal of Certificates. Each first day of January sees an annual " whitewash " of the entire profession; each member then pays his dollar and a half, or somewhat similar sum, to the State and in return becomes for another twelve months a bona fide " brand new " prescription expert. Most of our States issue new " diplomas " annually, some only give renewal receipts. What a grand collection of these most of us have and how lucky we sometimes feel that our State Boards have kept their rates reasonable enough for us not to lose the privileges of following our chosen calling altogether, for, as things stand at the present time, should any pharmacist refuse to pay his annual due he is denied professional recognition entirely—professionally he returns to the oblivion from whence he came.

What permanence is there in pharmacy at the present time? We have to be precise just twelve months of professional tenure; but that is precisely all. On this short lease of professional life we can hardly expect to build up a strong and adequate brotherhood willing and capable of doing the work entrusted to it by the public. We have not felt the dangers which annual registration has constantly been leading us into in the past because the other professions have had lax requirements and have not been well organized, but to-day when they are forging ahead as never before, it behooves us to follow in their wake if we would successfully compete for our share of the young men of the coming generation who expect to enter the professions. And for our very first move in this direction nothing could possibly be of more value than to lengthen and make really adequate the at present ridiculously short registration period. To be annually at the mercy of any body of men, however fine and just these may be, can never be conducive to professional independence (it must, of course, be understood here that there is not the slightest thought to accuse the State Boards of Pharmacy of being responsible for the conditions here set forth). *We need State registration for life based on conditions similar to those now found in the practice of law or medicine and we need this even more than we need reciprocal registration, important as that is.*

The idea that it is the pharmacist's duty to help pay for examining the young men that enter pharmacy and to pay for the prosecution of violation of the pharmacy laws; in short, maintain the Board of Pharmacy, is wrong and puts a burden on pharmacists which members of no other profession have to carry. Reasonable fees should be collected when a candidate takes his examination, but whatever other expenses are involved in maintaining the machinery of a State Board should be borne by the State which receives protection for its citizens by enforcement of proper pharmacy laws. These conditions now obtain in law, medicine, and dentistry. Is there any logical reason why they should not obtain in Pharmacy?

Permanent Registration is of far more importance than the mere nonpayment of an annual fee of one dollar and a half. The practice really robs the pharmacist of his professional standing. *As long as there is no professional tenure there can be no professional pride.* As things now stand, should a pharmacist decide to travel for a year or more and fail to receive his mail regularly, he might find himself no longer a pharmacist when he returns. He could, to be sure, take an examination, but why should he have to do this when he once has satisfied all requirements for practice? This practice robs the profession of its "esprit de corps" which is so essential to a profession, and we set about to correct it.

The whole movement for reciprocal registration, which has certainly done much good for pharmacy, is based on the fact that repeated examinations of a candidate once admitted to practice are unnecessary and useless where two States have equally rigid requirements. If the requirements for practice in two States are well regulated, if the examinations are thorough enough, the educational qualifications adequate, the time of apprenticeship definite in each, then why would a pharmacist be subjected to a new examination if he lives fifty or a hundred miles east or west of a geographical line and thus finds himself outside of the confines of the State in which he first took his examination? Such is the reasoning of the advocates of reciprocal registration and we all of us heartily agree. But witness the curious process we go through each year in order to keep ourselves, those of us who do not move out of the State, from taking repeated examinations. We ask the governor of the State to appoint a Board of Pharmacy. This Board in enforcing laws *for which we are largely responsible* then proceeds, as part of its duty, to say to us, "On the 31st day of December your license expires, you are no longer a pharmacist after that date. The years you have spent in acquiring the information you have, count for nothing as far as we or the public are concerned. If, however, you pay the sum of one dollar and fifty cents before such and such date we will reinstate you as a pharmacist, we will again give you the right to sell and dispense drugs and medicines, will put our O.K. on you for another twelve months, after which you must do the same thing over again. If, however, you do not pay up we discredit you entirely. We declare to the world that you have no right to sell drugs or dispense medicines." Legally you are now not as competent as your apprentice to be behind the counter. You have, however, one more chance to redeem yourself—that by taking another examination to prove that you have not deteriorated during the time that you were in financial arrears. *Being a pharmacist is very much like being a member of a union...You are O.K.'d if your dues are paid, if not, you simply are nobody.*

Now should this condition continue, are the years of service spent as apprentices, the college training we receive and the State Board examination we take, not sufficient for the State to declare once for all, when these conditions have been satisfactorily met, that we have the right to be called pharmacists and to practise our calling for life, subject to the rules of professional conduct similar to those now laid down for the lawyer, the dentist, the doctor and lately the teacher? I think they are, and it is our duty to see to it that these rights be given to us. There can be no doubt that the cause of pharmacy would be helped if we would ask our legislatures to pass such a law. The pharmacist could then take some pride in his calling. It would be a real vocation; it would be an incentive for younger men to strive for and make more of them anxious to enter the profession.

DISCUSSION.

C. B. Jordan: I would like to say a word or two with regard to this paper. I have read with a great deal of interest Mr. Nelson's first paper on this subject, read before the Kansas Association, and published in the JOURNAL OF THE A. PH. A.

This is the situation—provided you pay your fee, you are O. K.—you can practise pharmacy. If you do not pay your fee, you do not know enough to practise pharmacy. Is it not the State's duty to support the Board of Pharmacy?—the State supports the Board of Medicine. It is not the amount of money involved, but it is the position in which it places the pharmacist.

A. B. Huested: There is no question as to the standing of the pharmacist. So far as the justice of the annual payment of the dues by the pharmacist to renew his license is concerned, there is no justice in it. It is practised simply because of the fact that the expenses of the Board of Pharmacy and the execution of the law must be taken care of. There is very little expense connected with the execution of the law which registers, or the Board which registers physicians, and that which registers dentists and that which registers lawyers. They simply take the examination and then pay a fee commensurate with the expense, and that covers all the expenses. Now, a pharmacist does not pay a fee sufficient to pay for the expenses of his examination and the enforcement of the law. The pharmacist has in the past, and from the very beginning, taken upon himself the expenses of the enforcement of the law. He is to blame for it as much as anybody else. I do not believe, however, he could get the state to pay for the enforcement of the law, although it ought to be done.

The question regarding the annual fee for re-registration came up in New York State recently. A licensed pharmacist refused to pay his annual re-registration fee, because he thought the same as the writer of this paper does, that he should not pay an annual fee, and it was brought up in Court and decided against him. I do not think there was any justice in the decision. I agree with the writer of this paper that there is an injustice in the payment of this fee, and the only way to get around it is to have the state provide sufficient funds, or raise the fee to pay the expenses. I do not believe, however, that you can get either of them done. I believe the situation will remain—that is, if the laws are carried out. It costs a great deal more to execute the law for the inspection of pharmacies and the regulation of them than it does in the profession of medicine, dentistry or the law.

H. V. Arny: This is a point very well taken; namely, the absurdity of the fact that in a great many states, if a man does not pay his re-registration fee it automatically shuts off his brain, so that he has to take another examination. The idea is that since this re-registration is a tax pure and simple, if it is handled as a tax, the fellow that does not pay his re-registration fee on a certain day has to pay a double fee, or if he does not, I believe there is some action to be taken against him as a violator of the law.

The way to handle the subject is, not to claim that he is no longer a registered pharmacist, but to handle him as though he had not paid his taxes on time.

H. C. Christensen: I believe that Mr. Nelson and others who take a stand against re-registration, or the payment of a fee for re-registration, labor under a misapprehension, or a misconception as to why that fee is paid. Speaking from the point of view of the Board of Pharmacy, and having been a member for a number of years where we have re-registration, I believe that there is no state where a re-registration fee is paid that gets enough money to support, or anywhere near support, the Board of Pharmacy. The particular reason for re-registration, as I see it, and as Boards of Pharmacy in general see it, is a matter of checking the pharmacist. That is, so that certificates will not be floating about and be used by others than those entitled to them, and I believe the time will come when dentists and doctors will see the benefit of that.

In Illinois, only two years ago, quite an excitement was created by the fact that it was found there were nearly three hundred dentists practising in Chicago on other men's certificates, and I venture to say that if it could be checked up, that number would be far exceeded in the number of physicians practising under dead men's certificates, etc.

Where a fee is paid on examination, say twenty-five or fifty dollars, or any other single amount, that ends it, the Boards have absolutely no way of checking these registrations in later years. They could possibly, with the expenditure of a great deal of money, do so, but the payment of a small fee for re-registration yearly is the best protection to the pharmacist himself.

I realize that in one state, at least, the law is such that if a man moves out of the state he loses his registration. I do not think that right, but I think that applies whether he re-registers or not. When he moves from that state he ceases to be a registered pharmacist. That is absurd. I think we will all agree upon that. If you will look into that matter with a view as to why that fee is paid, I believe you will find it is a benefit instead of a detriment to the pharmacist.

A. W. LINTON: Referring to what Mr. Christensen has said regarding the amount in any state not being sufficient to pay the expenses. In Washington the pharmacists pay two dollars for the annual registration, and that is collected by the secretary of the Board, and he cannot spend one cent of that for the expenses of the Board or for any other purpose. It goes into the State Treasurer's hands. The legislature then appropriates a certain sum of money for the Board of Pharmacy. In the last few years the sum appropriated by the legislature has been considerably less—I believe last year it was several hundred dollars less than the amount paid in by the pharmacists for re-registration, including other fees collected by the secretary of the Board—shopkeepers' licenses, etc. Here the pharmacists are getting rather an unjust deal, as they are not only paying all the expenses of the pharmacy law, but are paying money also for the general running expenses of the state.

J. C. WALLACE: I heartily agree with Mr. Christensen in regard to the check provided by re-registration. It is the only way in which it is possible to get a complete record of the pharmacists who are entitled to practise. We know in our state that many certificates have been hung on the wall, and that people who were not qualified were practising under the certificate of a man occupying six feet, due east and west.

The question as I see it, is that I have never been able to understand why a Commonwealth—take, for instance, the Commonwealth of Pennsylvania, would not appropriate money for the enforcement of the pharmacy laws which are for the good of the whole people, but brother Walton here will bear me out in the fact that it is more like pulling teeth than anything else you can imagine to get an appropriation. We have tried year in and year out.

The hardship, as I see it, in the question, is why a young man who wishes to be a drug clerk, or, as we would call him in Pennsylvania, a Qualified Assistant, should be taxed with any fee for the enforcement of the law. But I am thoroughly and heartily in favor of registration at least once a year upon the payment of a small fee in order to cover the cost of it.

C. J. CLAYTON: It seems to me that aside from the protection of the people, for which pharmacy laws are primarily designed, they should also stand for protection for the reputable and qualified pharmacists. Speaking for myself, I do not think it is a burden to pay two dollars a year, or a larger sum, to protect myself against the encroachment of unqualified men. I am perfectly willing to pay for a renewal every year to take care of that matter. We are deriving a large measure of benefit from the pharmacy laws, and I do not think we should object to the payment of a small fee for defraying the expenses.

F. E. STEWART: I think that what Mr. Clayton has said is largely the crux of the whole situation.

While sitting here, I have asked myself the question—What is a Professional Pharmacist? I would like to have that thing adopted, so that we could know what we are talking about.

I agree with much of what the last speaker said. Pharmacy laws should protect the pharmacist as well as the public by protecting the license to practise pharmacy. But what is pharmacy? What do we mean by a *profession* of pharmacy? Are we not using the words pharmacy and profession very loosely? My idea of a profession of pharmacy is this, namely, a profession of pharmacy consists of a fraternity composed of persons educated, trained, and licensed to practise the arts of selecting, preparing, preserving, compounding and dispensing medicine to meet the demands of a rational drug therapy. As the practice of rational drug therapy requires a medical education, it is evident that the practice of pharmacy is dependent, in the main, upon the medical profession, and should be practised in co-operation with the physician. Co-operation with the physician can never be secured until the medical and pharmaceutical professions adopt rules for such co-operation—rules for the guidance of physicians and pharmacists in their relations with each other and the public at large.

These rules must contain provisions relating to the prescribing of medicines by pharmacists without diagnosis—rules relating to materia medica monopoly which bear upon the professional obligation requiring members of the profession to donate the results of their researches and experience to the common fund for the benefit of the profession and pharmacal science—rules relating to the advertising of medicines—and rules relating to other subjects concerning the handling of drugs as therapeutic agents.

The license to practise pharmacy should protect the pharmacist as well as the public. But it should be remembered that the license to practise is in the nature of a contract between the pharmacist and the public. According to the terms of this contract the pharmacist should promote the public health by practising in harmony with those professional and scientific requirements necessary to protect the public, and refrain from practices inimical to the public health.

Are we perfecting our pharmacy laws along the lines just indicated? If so we have a right to demand that the public shall protect the license to practise pharmacy. We have a right to demand legislation to prevent the invasion of the field of practice by unlicensed practitioners. We have a right to demand that the public shall pay for enforcing such laws and not tax the pharmacist for money to enforce them. But we must protect the public from ignorance and greed in our own ranks, and render to the public the professional service which we are licensed to perform.

I think that if the pharmacists would get together on these questions, we would soon be able to have laws passed and the public would support them, as Mr. Clayton said, to protect the licensed pharmacist from encroachment upon his field.

E. G. Fine: I think Mr. Clayton hit the nail on the head when he said the pharmacy laws were for the protection of the pharmacist. I think if we will look up their history, we will find that these laws came, not as the result of a demand on the part of the public or through a desire on the part of the legislature to pass such laws, but because the pharmacists demanded these laws as a protection, and because the legislators were not sufficiently enthusiastic, the druggists themselves were willing to shoulder the burden themselves.

L. E. Sayre: I differ with the last speaker and the others, but I think we could come to an agreement in that direction. I think there is a difference between theory and practice. I think Mr. Nelson in his paper is urging this fact, that by the present process of requiring the pharmacist to re-register every year in order to maintain his dignity as a pharmacist, he thinks that is wrong. I do, too. I think, on the other hand, that for the execution of the law, it is practically necessary that this should be done, because the legislatures, as a rule, will not appropriate money for that purpose.

Still, the fact remains that it is unfair to have a man thrown out of the profession, simply because he happens to forget or for some other reason neglects to pay his annual dues.

I want to object to the point just made by Mr. Clayton, and others, that these fees are paid for the purpose of the protection of the pharmacist. That is not true. The fees are for the protection of the public, and the public should bear the expense. I believe that we should have a fee for registration, but I believe that the ideal method is the one that Mr. Linton has just spoken of; that the funds should be given into the state, and that the state should bear the expenses of the Board. I think it is wrong that the pharmacist should pay an annual fee in order to get professional recognition. If I do not pay my dues at the end of the year, on the first of January, I am no longer a pharmacist. Theoretically I am no longer a pharmacist, but in December, between Christmas and up until New Year, I was a pharmacist. After New Year, I am not.

The point Mr. Nelson makes is just that. I think we have to view this from the standpoint of the public. We are legislating for the public good and the public should pay the expense.

C. O. Bigelow: The state from which I hail has some notoriously bad laws on its statute books, but I think we have a most excellent pharmacy law, and I think it behooves the pharmacists of some other states to copy some parts of our law.

We tried out, some years ago, a system of re-registration for pharmacists. We classified as pharmacists, the clerk and the proprietor and anyone licensed by the Board of Pharmacy to practise pharmacy. In some of our sister states they have bi-annual registration for all clerks and proprietors; some tri-annual. We came to the conclusion that it was a great hardship on the clerks to require them to re-register and pay a fee of one or two dollars, as it was at that time, and we had our law amended so as to register the store and not the pharmacists, and if a pharmacist fails to register his store during the month of January, he is proceeded against by the Board of Pharmacy and haled to court and fined, and after he has been fined once or twice he is apt to pay his annual fee of $2.50 promptly.

We have very little trouble in collecting the fee of registration of the stores. The blank that is sent out in December by the Secretary has a space for the entering of the names of all the registered employes in the store; those who are unregistered and other employes who occupy any position in the store. In that way the Board of Pharmacy can keep track of any apprentice who is registered by his employer, and after he has taken his course at college and has had the necessary experience and age, and goes before the Board for examination, they have a record of the apprentice and the time he entered the pharmacy.

We consider that a very just law. It does not work a hardship on the pharmacist; there is no friction; there is no irritation; and the rights of the pharmacist to practise pharmacy are not taken away from him. Eventually, they might be, if he failed to pay the fine imposed upon him. They might in that case revoke the license—not only his store license, but his license as a pharmacist. We have had cases where we have taken away licenses for various breaches of law.

We find it works splendidly, and we would not go back to the old system for anything whatever.

F. W. Meissner: Most of our pharmacy laws were passed prior to any prerequisite laws, and at the time the pharmacy laws were passed, you could not legislate anyone out of business who had the slightest claim as a proprietor of a drug store—whether he was a travelling man, or ran a peanut stand, and was a part owner of a drug store, he could register as a fully registered man, and for that reason the registration was very important. This gave an opportunity to the Board to eliminate just such men who were registering and were yet incompetent.

In our State, Indiana, we rather looked upon that feature as a desirable feature, because we knew, at the time the law was passed, many people were registering who were entirely unfit, and who merely claimed for the day to have an interest in a pharmacy. I know of one store, of my own knowledge, from which five men were registered and only one was competent. In due time we were able to eliminate them.

I do claim that this feature of bi-annual registration is a very desirable thing, and these states who have not yet seen fit to enforce the pharmacy law, or seen fit to maintain it, will soon see the light as we have in Indiana.

We asked for the law in Indiana. We could not induce the legislature to pass the law, because it would be matter of expense and we said that we would bear that expense. All those who registered would pay so much each year or every two years. Therefore, there would be no expense or burden to the state. We realized at that time that the state ought to carry it. Essentially the law was for the benefit of the public, and incidentally for the protection of the pharmacist.

Last year our legislature appropriated five thousand dollars for the enforcement of the pharmacy laws, but we still retain the bi-annual registration.

D. W. Ramsaur: In a majority of states annual renewal is the only safeguard, the profession would be in a chaotic condition were it not for the annual registration. The professional pharmacist does not object to this nominal fee. He knows it is for his protection, as well as for the protection of the public.

L. E. Sayre: I would like to ask one question. Suppose a state should appropriate enough money to carry on the expenses of the Board, don't you think you could get annual registration just the same? It is not a question of registration; it is a question of being fully recognized as a pharmacist. That is the point. Do not lose sight of that. The point is that you have to pay a fee to be recognized as a pharmacist.

H. C. Christensen: What is protection for the pharmacist is also protection to the public. More so to the public than to the pharmacist. If your pharmacists are not protected to the extent that pharmacy can be kept clean, then your public is not protected; in any state where you are unable to get legislation to enable the Board to carry on that cleaning process, I believe that the pharmacists themselves are perfectly willing to pay that fee, and I hope, as Mr. Ramsaur has said, that the impression will not be allowed to go out that the pharmacists are opposed to paying this fee.

I do not believe it is the intention to take from the pharmacist his standing as a pharmacist. It is simply a matter of checking for his own protection, and for the protection of the public.

Charles S. Koon: One point that was brought up in the paper and, I think, was touched upon once or twice since, was that a person who did not pay his renewal fee was a pharmacist only until the thirty-first of December, and on January first he ceased to be such. If the laws of the other states are like those of Michigan, there is a provision for reinstatement. A person does not necessarily lose his standing as a pharmacist. All he has to do is to pay his re-registration fee with, perhaps, a small fine, and he is reinstated. In that way, we do not lose anything. Simply our right to practise pharmacy until we are reinstated.

In some states teachers are required to pass an examination every year. In Michigan the third grade school teacher is required to come up every year for examination in order to get his or her certificate renewed. Nothing of that kind is required of the pharmacist in order to get his certificate renewed. You do not lose your standing as a pharmacist.

C. B. Jordan: I would like another chance to speak on this subject. I agree that registration is a fine thing when you cannot get an appropriation, but I think that it is pretty nearly time that the pharmacists should get that appropriation. Why should we have to pay for the enforcement of a public law? By all means, pay the fee until we get the appropriation, but get the appropriation as quick as we can.

In Indiana we have the appropriation. The Board appoints three inspectors to go over that state and visit drug stores and find out whether they have registered men in charge. Not until we got the appropriation did we have inspectors to find out whether the man next door was registered and whether or not his assistant was a registered man.

F. W. Meissner: We had to work gradually in securing the appropriation, but now the public itself demands registered pharmacists in drug stores of Indiana, and therefore it was comparatively easy to get the appropriation. If all the other states will work along that line, there will be no difficulty in getting appropriations.

M. I. Wilbert: We have been talking about two separate things, in reality, and we have lost sight of the more important feature that if the public is protected, the public ought to pay for it. The public should pay for the protection of the public, and when, by systematic inspection of drug stores, etc., protection is afforded, the public should pay for it, and they will pay for it just as soon as they see it is going to get the protection they have a right to expect.

CLASSIFICATION OF REGISTRATION IN PHARMACY.*

BY LEONARD A. SELTZER.

In discussing the form of a model pharmacy law, it would seem desirable to consider the advisability of continuing the registration of two classes of pharmacists on the present basis of degree in technical competency which is of no practical value or changing to one based on quality of competency, which distinction might conceivably be of some service.

The question of whether there should be two classes or only one is one which, while it has been raised, will not be discussed in this paper on account of the almost universal consensus of opinion in favor of the former.

It will be conceded that under our system of government the aim and purpose of all legislation regulating the practice of pharmacy must be the good of the public health and its safety. Legislation based on any other principle or with any other motive will fail even if by chance it should be enacted. The fortunate corollary exists that the more nearly and the more efficiently legislation operates along lines of public benefit the more profitable will be the business for those engaged in it.

One of the provisions common to and typical of most pharmacy laws is that there shall be two classes of pharmacists based on degree in technical competency. Another is that to become registered in either class a certain amount of experience in a store is necessary. The first qualification, therefore, that confronts the prospective candidate for registration is that of store experience. But there is no standard for such experience nor do boards inquire into, investigate, or stand sponsor for it. No amount of education nor preparation can be substituted for this so-called experience. A candidate may have an academic degree and have specialized for years in pharmaceutical or chemical research, but should he desire to appear before a board he must suspend pharmaceutical practice in order to perfect himself in the arts of a porter or messenger boy for two years or more. During this period he is protected by law by being prohibited from assuming any duties or tasks the doing of which might be of any value to him so far as his future pharmaceutical activities are concerned. This " protection " is made the more efficient by regulations governing the conduct of pharmacies, among which the obligation of keeping each store in constant charge of registered help necessitates the employing of more than enough of such help to do all the pharmaceutical work presented. This means, that unless the employer is altruistic to an unusual degree and has more interest in the rising generation of pharmacists in general or his clerk in particular than for his own trade, his profits or his ease, and will, therefore, devote his time to training his apprentice; or unless the apprentice will use some of his time in surreptitiously doing things he is not paid to do instead of sweeping floors or dusting the soda fountain, for which he is paid, his experience will be of little value pharmaceutically.

Having completed his experience he is allowed to appear before the board for examination. The result of this examination may be one of three; he may receive full registration, he may receive a second grade certificate or he may fail entirely.

In the first event he has simply demonstrated to the board, so far as an examination can show it, his technical competency, nothing more. If he pass the first examination, by the very restrictions of our laws he jumps from a position of no responsibility to one of fullest responsibility, from store sweeper or bottle washer to manager, from porter to possible proprietor of an establishment and dictator of its policy, all this without any opportunity or time to study at close range the duties, opportunities and ethical responsibilities of such a position. The experience which he has had and to which he has been compelled by law to restrict himself has in no way prepared him for the responsibilities which, in violation of the safety of the public, and even of his own permanent advantage, he is now in legal position to assume.

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* Read before Section on Education and Legislation, A. Ph. A. second session, Atlantic City meeting, 1916.

If, on the other hand, he receive a second grade certificate even greater inconsistencies arise, for in that case while he is declared by the law to be technically incompetent and may not perform his duties except under supervision of a registered pharmacist (when he is around) he is nevertheless allowed by law to assume responsibilities and be in actual charge during the temporary absence of his superior. So far as the writer has been able to discover the term "temporary absence" has been left undefined because it has been impossible to come to any agreement as to what the definition should be. In the meantime the extent to which the public safety is jeopardized is limited not by law but by the varying degrees in which individual employers recognize their responsibilities to the public.

Among the results of this illogical system are the following:

1. The consumption and waste of years of every candidate's time compelling him to do that which is of no value to him or the public, so far as his preparation as a pharmacist is concerned, and thus incidently eliminating from the profession the best prospective material who can not see the advisability of so wasting their years.

2. The establishment of a class of pharmacists whose prerogatives are defined in such a negative, not to say contradictory, manner as to render it impossible for any one to hazard an opinion as to what their real status might be.

3. Empowering men with legal right to assume the responsibilities to the public which go with the operating or managing of a pharmacy, without any provision for experience of a nature fitting them for the assumption of such duties.

4. Multiplicity of stores poorly manned, inadequately financed, inefficiently managed or insufficiently supported, which not only by their limitations are unable to give service themselves but by their very presence cripple other establishments which might otherwise develop to the point of real efficiency.

5. The concomitant depletion of the supply of clerks.

Having thus enumerated some of the defects in our present system, what should be done? The writer fully appreciates the fact that it is easier to point out flaws in any plan than it is to offer another in its place free from defects. One mind can find defects in a plan or even destroy it, while it takes the combined efforts of many minds to construct one. With these limitations in mind the following suggestions are offered:

1. It would seem logical that if pharmacy boards have no standards for experience and especially as the nature of the experience required at present is by law prevented from being of such a nature that it could have any bearing on the preparation of the candidate along the lines in which the Board of Pharmacy or Pharmaceutical Legislation is interested, such experience should not be made a condition for examination or registration in case of second grade certificates.

2. That no ambiguous certificates of any kind should be issued to any candidate. No certificate at all should be issued unless the candidate be capable of

rendering a definite public service or unless his knowledge be sufficient to enable him to assume responsibility without endangering public safety.

3. That any one who knows enough about drugs to handle them with safety to the public and who can qualify before an authorized board should, whether he acquire the knowledge in a store, school of pharmacy, or by burning midnight oil, be given his certificate, should be allowed to work and receive his due wages—all he is worth; and should be thus granted the legal, open and above board, honest means of getting that experience which will later enable him to be valuable to the public, valuable to himself, and valuable, instead of a menace, to those associated with him in his own calling.

4. That moreover it should be lawful to employ such a man and give him such opportunity.

5. That the prerogative of pharmacists of this class should be in accordance with the qualification of being technically competent.

6. That the question of knowledge only concerns the law and the boards. Dexterity and efficiency—value as an assistant must continue as now to be a matter of adjustment between employer and employee.

7. Certificates for registration in the first class should be issued only to those who in addition to having passed the board showing technical competency shall have served a specified number of years as pharmacists of the second class. This experience, although not under the supervision of the board, is not open to the criticism on experience noted above because as pharmacist of second class he would presumably get pharmaceutical experience, at any rate would not be legally debarred from getting it.

While the above would seem to be the minimum requisites that could be considered and would virtually leave the qualifications of pharmacists of the first class where they now are, with the advantage of a better kind of experience, nevertheless many other qualifications could be required with advantage. It is questionable whether in this age with all the opportunities for education, and the greater need for it, a candidate should be allowed a certificate enabling him to assume the obligations and responsibility of operating and managing a pharmacy and dictating the policy of it without at least the general training of a high school course and later the special training in a school of pharmacy.

By similar action has the medical profession gradually placed the members of that profession in the position they occupy in the community. The ridiculous hypothesis that a surgeon needs no more education than a butcher to chop a man's leg off with a meat ax has not prevented the medical men from requiring of those aspiring to join the profession higher education, broader culture. The absurdity of the argument as applied to medical men is apparent only because the medical men have insisted upon considering it so. Essentially it is no more absurd than those so often made and unfortunately concurred in by pharmacists, that it requires no science to pour from one bottle into another or that because an ability to count twelve will enable one to put up a prescription of a dozen tablets, therefore, no more mathematics is necessary, or even that a knowledge of psychology and logic is superfluous in handling our trade, or that a familiarity with the principles of ethics will not assist us in realizing the duty which as pharmacists we owe the community we serve. Certainly these statements are absurd, but they are not considered so and will not be until we first make the discovery ourselves, and then, not by futile protests, but by our acts and by the standards which we voluntarily assume, we demonstrate them to be so.

DISCUSSION.

M. I. **Wilbert**: I think the suggestion made is sane and reasonable. The Assistant Pharmacist, as ordinarily expressed, is ridiculous. If a man cannot legally acquire knowledge or experience, and under the law he cannot do so until he is empowered to practise all of the art, is it reasonable that the officers of the law empower one who is evidently incompetent and who could not legally have acquired the competence, to be competent by affixing their signature to a piece of paper?

The proposition offered by Mr. Seltzer does not settle things. It would insure clerks and it would insure competent clerks and safe clerks, in so far as that the clerk would have technical knowledge and would have acquired experience of the kind that would fit him to do certain things. He has done these things experimentally and under supervision and if he has proved himself competent in the college to do certain things, he is certainly competent, in a retail store, to do the same things, and as a clerk he would be infinitely more valuable than a clerk who has not acquired that knowledge or dexterity.

H. M. **Whelpley**: There are two ways of approaching this subject. One from the standpoint of the registered assistant, and one from the standpoint of the employer.

I have had occasion to come in contact with this matter in Missouri—those seeking situations and those desiring assistance, and while I have not studied the subject particularly, my impression is that the person who takes the assistant examination does so because he feels that it is a stepping stone towards full registration, and not because he thinks it is going to help him particularly in getting a situation. I have had men say they were not registered when they were registered as assistants, and so far as the proprietors are concerned they do not care whether a man is an assistant or not. They either want a registered pharmacist (a fully registered man) or they can get along with a man who is not registered, and that he is registered assistant will not induce them to pay more salary or consider him as being over and above an apprentice not registered, but who has had considerable experience.

E. G. **Cox**: In regard to assistants in Missouri, there are a great many towns of less than five hundred inhabitants, and we issue Assistant's Certificates, giving them the full power of registered pharmacists in these towns of less than five hundred inhabitants. I think the assistant pharmacist is only the stepping stone to something higher, as has been stated, and there are many who will take the examination under these circumstances.

H. C. **Christensen**: From my observations with the boards and pharmacists in general, I believe it to be a calamity to dispense with the assistant pharmacist. I might say further that I believe with the right sort of handling, we have in that proposition a great thing, but it must be handled from a different angle than heretofore. I believe that with the advanced Pharmacopœia and the thoroughly scientific methods adopted under the present new revision, that our requirements for registered pharmacists as well as assistants was too low. I believe that we should, in order to bring the proposition up on a level, or somewhere near on a level with our authority—the Pharmacopœia—the schools and the boards should increase their requirements of the registered pharmacist so as to make him a thoroughly educated and scientific man. Then, I believe, to go along with that we should have a competent assistant, an assistant that would have very nearly the requirements of the full registered pharmacist at present. I believe that by dividing these two, or by having these two classes, that you would come to a condition that would be nearly perfect. The assistant, as you all know, if he is competent makes a better clerk than the full registered man, since as soon as a man becomes registered he begins to think about something for himself—going into business and having a store of his own, but your assistants should be competent, should be of a higher class than they now are.

When that condition prevails, you will have thoroughly educated, competent registered pharmacists and they will be on a level with the other professions, they can talk intelligently to the physician, talk on scientific matters and will be capable of using the Pharmacopœia, rightly and intelligently. You would also have a safe assistant, so far as the ordinary duties of the drug store are concerned.

In that way some men would become assistants and remain so all their lives. They would get a salary probably equal to the salary of the registered pharmacist at the present. They would not be entitled under the law—the law should restrict them—so that they could not run a drug store on their own account. If they owned a drug store, they would require a high class registered man in charge, but they should, under the law, be given the privilege of being in charge of these stores run by a registered man, both during his absence for meals and during such other temporary absences as the board might see fit to provide for.

I think this is a matter we ought to discuss at some length and arrive at an understanding. I think the time is here to either eliminate the assistant entirely, or to bring about some such condition, and I believe to eliminate the assistant entirely would be a calamity.

C. B. Lowe: In Pennsylvania the qualified assistant occupies a place such as is occupied by him in no other State. His rights and privileges to take charge of a store for a brief space of time in the absence of the proprietor give him a better position there.

In Missouri it does not seem to make much difference whether a man is an assistant or not. It does make a difference in Pennsylvania, especially in Philadelphia. His salary would be several dollars more if he were an assistant.

The Pennsylvania Board of Pharmacy some years ago asked the same questions of one who came up for qualified assistant as a registered pharmacist, but they do not do so at the present time. They give a man coming up for a Qualified Assistant's Certificate an entirely different examination. They ask questions which he is supposed to answer, and which he ought to be able to answer. Before, they simply graded them on the same examination, passing a man for the grade of Qualified Assistant if he made, I think, fifty—although I am not quite certain of the figures. Mr. Emanuel, I believe, can correct me—and requiring an applicant for a Registered Pharmacist's certificate to make fifteen or twenty points more. Of course, a great many of the questions asked, they tried to answer without understanding them—are not supposed to understand—did not make a study of them. But, at the present time, they make a practical examination, consisting of questions the answers to which they ought to know, and if they do not know, then they cannot get the grade.

Unfortunately, at the present time, pharmacy is not taking its rightful place as a profession. It is not holding its own. There are so many side-lines coming into the drug store that they do not seem to have the same necessity for a registered pharmacist and in many cases an assistant could do all they want done. If you were to abolish this grade of assistant, I think you would work a harm to the country drug stores and to many of the city drug stores.

H. B. Mason: It seems to me that the auditors have misunderstood Mr. Seltzer's position somewhat. I do not understand that he advocates a continuance of the present system. He contemplates something different from that. He advocates two classes, but not as they exist to-day in so many states. If I understand correctly he goes back somewhat to the doctrine laid down by one of the greatest thinkers pharmacy has developed in this country, Dr. Oldberg, a man who always argued for two classes of pharmacists, and his theory was that you ought to have an assistant pharmacist who could be only a clerk as long as he is only an assistant and, subsequently, a registered pharmacist who would be eligible to proprietorship. His idea was that before a man could control a store as owner, he ought to be better equipped, perhaps, than mere knowledge could equip him. Perhaps he did not need to be any more technically expert than the clerk, but he ought to be a broader man, to be responsible for the character of the goods in his stock, and live up to what the public requires of him, so that he could assume all the responsibilities of his position as the proprietor of the store and a conservator of public health.

Dr. Oldberg argued that if you had but one class, a clerk who became registered, as soon as he did so, he was ambitious to become a proprietor with the consequent result that you would have too many stores and too few clerks. Ever since I can remember the proprietors have complained that they could not get enough clerks. On the other hand, there are too many stores and the competition is too great. Your new clerk starts a competing store on the corner the year after you have employed him. Mr. Seltzer wants to make that distinction between the training of a clerk and the equipment of a proprietor. A clerk should be just as well equipped, technically, as the proprietor, but do not let the man who becomes an assistant pharmacist and who does all the duties you may impose upon him, do not let him become a proprietor until four or five or six years have elapsed and he has had experience and has become an older and broader man. We know that this thing of allowing the clerk to be in charge for a half hour when the proprietor is out at lunch is a joke anyhow; that is, that the clerk shall have full charge for thirty minutes while the proprietor is out at a restaurant, or elsewhere. I think that if the clerk is competent he ought to be allowed to have charge for even a day or so, if necessary.

But when it comes to the policy of the store, giving pure and high-class products, and so forth, there is a set of principles a proprietor should have, which it is, perhaps, unfair to expect of an immature person.

AN EXPERIENCE MEETING.*

BY PHILIP ASHER.

At the last annual meeting of the Alumni Association of the New Orleans College of Pharmacy, the President, Mr. J. B. Murphy, introduced an innovation that was instructive and very wide in its application. Mr. Murphy, a graduate of but three years ago, young, bristling with energies and new ideas, and being of the same age as a majority of the past year's class, knew exactly how best to get next to the " boys " and by a process peculiar to himself was able to extract from them many latent ideas and have them unbosom themselves.

Present at this meeting was the entire faculty of the college. To them it was a revelation almost beyond belief to hear these graduates, who but a short time before were their students and from some of whom it was almost impossible to get sufficient expression, in oral recitations, to show that they knew the lesson under discussion, tell their experiences in clear tones and well-chosen words. The title of this paper might lead one to believe that this experience meeting was some spiritualistic conference or religious assembly. It was, however, nothing of that order. It was just a simple, plain, pharmaceutical gathering, though there was sufficient material developed during the session to serve as a text for more than one good sermon.

After the regular order of business had been disposed of, the President, in welcoming the new members to the Association, requested each to tell his or her reason for taking up the study of pharmacy as a life work. At first, " the going was slow,"—to use the vernacular of the race course—but it was not long before the " going was good," and within a short time they all made " fast strides on a good track." After the " experience meeting " was well under way, they became " warmed up " to the subject, and it was not long before all embarrassment had left them, and they described their experiences with perfect calmness and spoke to the assembly with as much ease as they would have spoken had they been addressing their classmates alone.

To the teachers, the descriptions given and the pictures painted were replete with sentiment, determination and color, and in some of them there was sufficient material for a first-class book. We were amazed at the hardships several of these students had to undergo to gain that much-coveted prize, the diploma. At times we were almost moved to tears by the experiences that were related, and sometimes, when we consider their every phase, we wonder if the efforts are worth the gain.

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* Read before Section on Education and Legislation, Atlantic City meeting, 1916.

Those present were loud in their praise of the innovation and left after the meeting feeling that the time was well spent and the narrations replete with morals and lessons for the advancement of our calling.

We also felt that if this meeting should pass without wide publicity being given to it, it would result in little good, for viewing it from its many angles one is surprised how broad is its scope for practical good.

The writer in viewing it from some of its aspects became deeply impressed with the difference in behavior between the recent student and the new graduate, and his impressions have led him to reflect what may have been some of the causes of the changes in the address and bearing of the student.

Let us first analyze it from the angle of pharmaceutical teaching and see what factors it may contain to enable teachers to get better results from the efforts they put in their work.

Efficiency is described as the ratio of work gotten out of a machine to the energy put into it. Do we get the highest degree of efficiency out of our students and is it proportional to the energy we put into our work?

What are some of the factors that decrease the efficiency of the human machine, the student? They may be enumerated practically as in physics: friction and deficient power.

Regarding the first factor: this condition in a well-regulated classroom should not exist, as any discord between pupil and teacher not only proves harmful to both, but as one piece of machinery out of harmony with the balance of the workshop will lessen its total efficiency, so likewise any discord between teacher and pupil will have the same effect upon the whole class.

Why did these young men upon this particular occasion show one hundred percent efficiency? Because all parts were working in perfect accord, and they now felt themselves upon the same plane with those who taught them, and the feeling of uneasiness which naturally exists on the part of students towards their teacher was lacking. Such uneasiness is an element of friction, and that condition being removed the machine worked smoothly.

This observation shows a common fault of some teachers in not getting the fullest confidence of the student. While there is a line of demarcation between student and teacher, this line must only exist insofar as the decorum of the classroom is concerned. The false dignity of position that some teachers assume should be swept aside and nothing should stand in the way of permitting us to bring the machine placed in our hands to the highest degree of perfection.

What is the power a teacher should possess to bring out the best efforts of his charges? The ability to present his subject in a manner that will keep his pupils constantly interested. A great number of teachers are thoroughly conversant with their subjects, but they lack the above requisite and, as a consequence, a lessened degree of efficiency in the student results. Merely to deliver a lecture and feel that one's duty is done, is far from the province of a teacher. The instructor's aim should be to see that the lesson is driven home and thoroughly comprehended. His presentation of the subject should be clear, concise, forcible and supplemented by appropriate and practical illustrations and examples. To speak over the heads of the students defeats the purpose of the instruction. We must bear in mind that the students come to the teacher for instruction, and *the teacher should not take it for granted that because the entrance conditions of the school exact that the student possess a specified amount of preliminary training, he* *measures up to such qualifications.* Consequently he should present his subject in such a manner that not a single point will be lost by any student. If the subject is clearly set forth and the student made to understand each step in the matter, his interest will naturally be aroused and developed as the subject progresses, and that he has sufficiently understood the lesson will be shown by his satisfactory recitals in the quiz-room.

If, however, a single cog in one of the great wheels of education should slip, it would throw out of gear the whole machinery of that particular subject, and the student, failing to understand, would lose interest and courage, and so would not be able to put into his work his fullest power. The consequence would be a loss in efficiency.

The student attends college not merely to be shown what is in the text-book, but also to derive such benefit as he may from the teacher's practical knowledge and experience and his manner of handling the subject. The narration of the teacher's own experiences in an interesting and instructive manner holds the student's attention and impresses him more strongly than the prosaic matter of the text-books, and the enhancement of the subject with an occasional joke enlivens the hour and removes some of the humdrum of the lesson. There is not *one* single subject in the curriculum of a college of pharmacy that cannot be made interesting, if the teacher will inject his own personality into the topic.

Is there still a wider range for this " experience meeting " and can it be applied to any of our national, state or local pharmaceutical meetings?

Why is it that so many of our pharmaceutical meetings are so uninteresting and their attendance at an ebb? Because the average pharmacist dislikes to write papers and is often at a loss for a proper subject. If, however, this innovation were introduced, it would not be long before the time for discussion allowed each member would have to be limited. Let some member get up and describe some of his everyday experiences and we would soon find that nearly all would desire to tell about similar experiences. We are all familiar with the scenes that take place in the smokers of railroad trains: how when some jovial fellow starts the ball a rolling with a rattling good joke, it is only a moment after he finishes that half a dozen others will say, " that reminds me." Each has a joke to tell and all are willing and interested listeners, and soon all become oblivious to the flight of time. Likewise, with the experience meetings at pharmaceutical conventions. Let John Brown start the ball a rolling with the narration of something that has occurred to him in his business, and Jones and Smith will have a hard time getting a word in edgewise; and we would have, instead of a long drawn out and tedious session, a lively, interesting, useful and instructive meeting.

Program committees of various organizations have labored earnestly in trying to arouse interest, and have formulated lists of questions to be written and discussed by their members, and time and time again no one has seemed disposed to undertake the task. But if the program committee would direct its energies toward relating particular experiences that have occurred to them, they would bring about an entirely different condition. It is a well-known fact that a large number of pharmacists cannot write an article upon any particular topic, yet possess the ability of orally discussing it in an entertaining manner which would elicit the keenest interest from those present.

In no calling is the opportunity for experiences greater than in pharmacy. There are both the bright and dark sides. These experiences may be regarding the funny side of our profession and produce a spirit of hilarity, causing us to forget, at least for the moment, our greater responsibilities. Are there any among you who cannot tell some tale out of the ordinary, or something about the sale of that great article of commerce from which we derive our large profits—postage stamps? Or about some outlandish request we received over the 'phone to deliver some foolish message? Or a story regarding another source of income,—the directory? Could not some one get up a symposium about how they collected bad debts, and could not his listeners profit by his recital? The number of topics could be multiplied *ad infinitum,* and the details would work out themselves. We need not have these meetings confined to levity alone, but with the responsibility attending our calling we could also add experiences relative to serious matters affecting the professional and ethical side of our activities.

Is it not only natural to infer that if these young men of the college alumni, without any experience of speaking before an audience, could give a talk that interested their hearers, there might also be found among the rank and file of the pharmacists many who could relate to their confreres experiences which would carry with them food for reflection and redound to the betterment of pharmacy? Let us try to work together towards this end and inject more "ginger" into our proceedings and thus instil a greater desire in our members to attend our sessions and make them feel that the time, money and energy spent in coming to them will be more than repaid.

DISCUSSION.

L. G. BLAKESLEE: I have in mind an incident that perhaps typically applies, or, rather, this paper applies to that particular occasion. It was at our meeting in Denver and the Commercial Section was dragging along very slowly, and the Chairman asked for a topic for the afternoon discussion, and I think it was something relative to Commercial Pharmacy. In any event, it was of a nature that raised considerable interest and it developed into exactly the kind of meeting Dr. Asher has described. It developed into an experience meeting. They asked me to do a little something. I went to several of the largest drug stores there and asked if they would let me look at the first fifty prescriptions they had dispensed, and I noted there the relation between the prescriptions actually compounded and those merely counted, or, so to speak, poured from one bottle to another. That was one thing. But before the afternoon passed, that little room—about the size of this one—was packed to the doors, and one of the larger sessions sent their compliments to us; they imagined that we were conserving interest, and said that when we were ready to adjourn they would be glad to have us call on them. The Chairman sent his compliments and said that when they adjourned we would be glad to have them call on us, if they could get into the room.

I never attended a more interesting meeting. It brought nearly everyone to his feet, nearly everyone had some good idea. Dr. Asher's paper, it seems to me, hits the nail on the head. We could have many of these meetings, get the members interested and hear what they have to say.

SOME OF THE FORMER CHAIRMEN OF THE SECTION ON PRACTICAL PHARMACY AND DISPENSING.

Seated, Louis Saalbach, Pittsburg, 1910; P. Henry Utech, Meadville, Pa., 1911; J. Leon Lascoff, New York, 1912; Standing, H. A. Brown Dunning, Baltimore, 1906; F. M. Apple, Philadelphia, 1907; Henry P. Hynson, Baltimore, 1900; Leonard A. Seltzer, Detroit, 1908; Otto Raubenheimer, Brooklyn, 1909.—*Courtesy of American Druggist.*

SECTION ON PRACTICAL PHARMACY AND DISPENSING, AMERICAN PHARMACEUTICAL ASSOCIATION

UNIFORMITY IN DISPENSING.*

BY J. LEON LASCOFF.

My object in presenting this paper on "Uniformity in Dispensing" is to impress pharmacists with its great importance—especially at this time, when the new editions of the United States Pharmacopœia and National Formulary have just become official.

The chief changes have been:

1. The dismissal of about 20 percent of the articles found in the U. S. P. VIII.
2. The transfer of certain galenicals from the U. S. P. to the N. F.
3. Official abbreviations.
4. Synonyms given after the official title.
5. The addition of 68 preparations to the U. S. P.
6. The changes of the strength and assay of drugs and preparations.

It is incumbent upon every pharmacist to acquaint himself intimately with these changes in order that he may comply with the law in the preparation of all galenicals as prescribed by the new regulations.

According to the law of the state of New York, a pharmacist must be in possession of the latest editions of both the U. S. P. and N. F. and when filing an application for registration of his Pharmacy, he must swear to that fact.

I have read with great interest the editorials and other contributions that have appeared in several pharmaceutical journals—by Professors Sayre, Scoville, and Diekman, Geo. M. Beringer and others. Their articles have dealt with the changes of this Pharmacopœia. While these résumés have been very exhaustive, they have passed over the changes made in the galenicals and it is my purpose to take these up and discuss them in detail.

For example, consider the Elixir Terpini Hydratis, N. F. The new edition prescribed double the quantity of tincture of sweet orange peel, the addition of the spirit of bitter almonds, the reduction of the quantity of syrup with the addition of a proportionate amount of water and the elimination of saccharin. The finished product will, therefore, differ markedly in taste and appearance from the old preparation.

Liquor Ferri Peptonati and the Liquor Ferri Peptonati et Mangani are prepared differently from the method laid down in the old N. F. I am thoroughly familiar with the changes in these preparations inasmuch as it was my great good fortune two years ago to be assigned by Prof. E. Fullerton Cook to experiment with these preparations among others.

As these changes are quite fundamental in many respects, the question at once arises—what will the pharmacists do with the stock on hand? What will they do with the repetition of old prescriptions? We must admit that very scant time is given them to adjust themselves to the new conditions. Some discussion of this vital question would not be amiss. The same state of affairs arose when the U. S. P. VII became official. I may say, however, that to the best of my recollection, more time was allowed for adjustment. While these two books have already become official, I can safely state that few pharmacists are yet in possession of them, for the simple reason that it has been hardly possible to distribute the books to all who have ordered them.

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City Meeting, 1916. It was requested by the Section that this paper be printed as early as possible, therefore, it appears in advance of the minutes of that Section.

Perhaps a label attached to the bottle of the repetition of preparations which differ in taste and appearance would solve the problem. It might read as follows:

> NOTICE
>
> This prescription was prepared according to the new Pharmaceutical Standards which became official September 1, 1916. (These books are revised every ten years.)

To facilitate matters, I have indicated all preparations, seriatim, trusting that my suggestion will serve as a useful guide.

CHANGES IN THE UNITED STATES PHARMACOPŒIA.

Collodium Cantharidatum.—Extraction with acetone and glacial acetic acid instead of chloroform of U. S. P. VIII.

Collodium Flexile.—Camphor is used in place of Canada turpentine of U. S. P. VIII.

Elixir Glycyrrhizæ (Adjuvans VIII).—Fluidextract glycyrrhizæ, 125 mils to 1000 mils, instead of 120 Cc. to 1000 mils.

Emplastrum Plumbi.—Lead oxide is used in place of lead acetate; olive oil and lard in place of soap.

Infusum Digitalis.—No alcohol is added.

Linimentum Ammoniæ.—Alcohol and oleic acid are omitted; sesame oil is used in place of cotton seed oil.

Liquor Magnesii Citratis.—Hot water is used. Oil of lemon and syrup replaces syrup of citric acid. Two and one-tenth grammes of sodium bicarbonate in compressed form may be used instead of 2.5 grammes of crystal potassium bicarbonate.

Massa Hydrargyri.—One gramme of oleate of mercury is used in preparing 100 Gm. of the mass. This was not used in U. S. P. VIII.

Mistura Glycyrrhizæ Composita.—Antimony and potassium tartrate replaces wine of antimony.

Mucilago Acaciæ.—Lime water has been omitted and 350 Gm. of acacia is used in place of 340 Gm. in 1000 Gm., in U. S. P. VIII.

Oleatum Hydrargyri.—Alcohol is employed for triturating the mercuric oxide, in place of the water, stirring constantly until the alcohol is evaporated.

Oleoresinæ.—Ether is used in extraction, instead of acetone, in preparing the oleoresins of aspidium, capsicum, pepper and ginger.

Syrupus Aurantii.—Purified talc replaces magnesium carbonate as triturate with the tincture of sweet orange peel.

Syrupus Calcii Lactophosphatis.—Glycerin is added to the syrup.

Syrupus Ferri Iodidi.—The amount of sugar has been reduced from 600 Gm. to 575 Gm.

Syrupus Hypophosphitum.—Tincture of lemon peel is omitted and glycerin is added.

Syrupus Pruni Virginianæ.—The wild cherry bark is percolated with a mixture of glycerin and water. Before, the glycerin was placed in the receiving bottle.

Syrupus Sarsaparillæ Compositus.—Methyl salicylate is used in place of oil gaultheria and alcohol is added. Syrup is used in the place of sugar and water.

Tinctura Cardamomi.—The amount of cardamom seed has been reduced from 200 Gm. to 150 Gm. to 1000 mils.

Tinctura Iodi.—Fifty mils of distilled water enter into the formula for making 1000 mils of tincture.

Tinctura Kino.—Glycerin is omitted and less alcohol is used and different *modus operandi.*

Tinctura Nucis Vomicæ.—Made by percolation of powdered drug and not from the extract. Contents of alkaloids is changed to 0.237–0.263 Gm.

Tinctura Rhei.—The amount of cardamom seed is reduced from 40 Gm. to 30 Gm.

Tinctura Sanguinariæ.—Hydrochloric acid replaces acetic acid.

Unguentum Belladonnæ.—More lanolin and less lard is used as a base.

Unguentum Hydrargyri Dilutum.—Change in strength; less of mercurial ointment and more of petrolatum.

Unguentum Phenolis.—Strength reduced from 3 percent to 2.25 percent.

CHANGES IN THE NATIONAL FORMULARY.

Acetum Aromaticum.—The percent of alcohol and acetic acid is increased.

Cordiale Rubi Fructus.—Syrup of blackberry replaces blackberry juice and syrup.

Collodium Stypticum.—Alcohol and ether are omitted. Flexible collodion is used in the place of collodion.

Elixir Ammonii Bromidi.—A considerable amount of syrup and water is added to the aromatic elixir which was formerly used alone.

Elixir Buchu.—The amount of alcohol is reduced and the syrup is omitted.

Elixir Buchu Compositum.—The alcohol and syrup are omitted.

Elixir Calcii Bromidi.—Syrup and distilled water are added in considerable amounts.

Elixir Calcii Lactophosphatis.—Precipitated calcium carbonate and lactic acid replace calcium lactate. Compound spirit of orange is used in place of aromatic elixir; the amount of phosphoric acid is increased.

Elixir Catharticum Compositum.—Saccharin is omitted.

Elixir Cinchonæ Alkaloidorum et Hypophosphitum.—The amount of hypophosphorous acid is increased.

Elixir Cinchonæ Alkaloidorum Ferri et Calcii Lactophosphatis.—Syrup of calcium lactophosphate is used in the place of calcium lactate and phosphoric acid and potassium citrate in the place of citric acid. This preparation contains more syrup than that of N. F. III.

Elixir Ferri Hypophosphitis.—The solution of iron hypophosphite is freshly prepared.

Elixir Ferri, Quininæ et Strychninæ.—The aromatic elixir is made extemporaneously, glycerin is added to the preparation.

Elixir Gentianæ.—Solution of ferric sulphate, ammonia water and aromatic elixir are omitted, sodium citrate, glycerin and syrup are added, amount of compound spirit of cardamom reduced.

Elixir Gentianæ Glycerinatum.—The amount of acetic ether and phosphoric acid has been reduced.

Elixir Glycyrrhizæ Aquosum.—Compound spirit of cardamom, stronger orange flower water, syrup, glycerin and water are used in place of aromatic elixir.

Elixir Hypophosphitum.—The amount of compound spirit of cardamom has been reduced from 30 to 0.6 mils for 1000 mils.

Elixir Hypophosphitum et Ferri.—Ferric hypophosphite is used in place of ferrous sulphate; potassium citrate is added, amount of calcium hypophosphite reduced.

Elixir Lithii Bromidi.—A considerable amount of syrup and water was added to this preparation.

Elixir Pepsini et Bismuthi.—Tincture of caramel was added to this preparation, changing its color.

Elixir Pepsini et Rennini Compositum (Essentia Pepsini N. F. III).—The amount of tincture sweet orange peel, alcohol and glycerin is increased; wine is not used at all; oil of myristica is added.

Elixir Phosphori.—The spirit of phosphorus is freshly made and so is the aromatic elixir.

Elixir Potassii Bromidi.—A considerable amount of syrup and distilled water is now added.

Elixir Sodii Bromidi.—A large amount of syrup and water is added.

Elixir Sodii Salicylatis.—There is an addition of a large amount of syrup and water.

Elixir Terpini Hydratis.—The amount of tincture of sweet orange peel is doubled; the amount of alcohol is increased; solution of saccharin is omitted; spirit of bitter almonds is added.

Elixir Terpini Hydratis et Diacetylmorphinæ.—The amount of diacetylmorphine hydrochloride is considerably reduced (from 0.75 to 0.27).

Elixir Terpini Hydratis et Codeinæ.—The amount of codeine is reduced.

Emulsum Olei Morrhuæ Cum Calcii Lactophosphate.—More cod liver oil and acacia used; calcium lactophosphate replaces calcium lactate and lactic acid replaces phosphoric acid.

Emulsum Olei Morrhuæ Cum Malto.—The amount of cod liver oil is reduced; extract of malt increased. Tragacanth and water displace mucilage of dextrine.

Emulsum Olei Morrhuæ Cum Pruno Virginiana.—The amount of cod liver oil and acacia are increased.

Emulsum Olei Ricini.—The amount of castor oil is slightly increased.

Emulsum Petrolati.—The amount of petrolatum and oil of almond is greatly increased; acacia only is used as an emulsifying agent.

Linimentum Opii Compositum.—Fresh egg albumen is added.

Linimentum Saponato-Camphoratum.—Soap is replaced by monohydrated sodium carbonate, stearic acid and water.

Liquor Alumini Acetatis.—Lead acetate is used in place of acetic acid and calcium carbonate.

Liquor Antisepticus.—Sodium benzoate replaces benzoic acid; sodium salicylate and menthol are added; the amount of alcohol is increased.

Liquor Antisepticus Alkalinus.—The amount of sodium benzoate is reduced and the amount of sodium borate increased. Cudbear is used in the place of its tincture and the amount of glycerin is reduced.

Liquor Bromi.—The amount of bromine is greatly reduced to almost one-third.

Liquor Ferri Albuminati.—Fresh egg albumen is used in the place of dry albumen and sodium citrate in the place of sodium hydroxide.

Liquor Ferri Hypophosphitis.—Ferric hypophosphite is used in the place of ferric ammonium sulphate and sodium hypophosphite.

Liquor Ferri Oxychloridi.—Glycerin is added.

Liquor Ferri Peptonati.—In the place of dry peptone, fresh egg albumen is converted by means of pepsin and hydrochloric acid into peptone. Aromatic elixir is omitted. Flavoring agents are added and the quantity of alcohol is increased. This, however, contains less alcohol than the same preparation of the N. F. III.

Liquor Ferri Peptonati et Mangani.—The peptone is prepared similar to that of liquor ferri peptonati. Solution of ferric oxychloride is used. Sodium citrate and flavoring agents are added and aromatic elixir omitted.

Liquor Hypophosphitum Compositus.—The amount of glycerin is increased.

Liquor Pancreatini.—Sodium chloride and chloroform are added and the amounts of compound spirits of cardamom and alcohol are reduced.

Liquor Phosphatum Acidus.—Calcium carbonate and magnesium carbonate are used in the place of bone ash and phosphoric acid in the place of sulphuric acid.

Liquor Sodii Arsenatis, Pearson.—Exsiccated sodium arsenate is used in the place of crystals.

Liquor Strychninæ Acetatis.—Strychnine alkaloid is used in the place of the acetate and acetic acid employed.

Mistura Guaiaci.—Tincture of guaiac takes the place of resin, honey replaces acacia and sugar.

Mistura Pectoralis, Stokes.—Ammonia water is omitted.

Mistura Rhei Composita.—Under this title comes mistura rhei et sodæ U. S. P. VIII while the N. F. III had under the same title Squibb's rhubarb mixture.

Oleatum Aconitinæ.—Fifty percent of olive oil is used in the place of oleic acid.

Spiritus Cardamomi Compositus.—Oil of cloves, oil of orange, and anethol are added; glycerin and water are omitted; the amount of oil of cardamom and cinnamon increased.

Syrupus Codeinæ.—The amount of codeine sulphate has been considerably reduced (from 1.0 Gm. to 0.2 Gm.).

Syrupus Ferri et Mangani Iodidi.—Sodium iodide is used in the place of the potassium salt; diluted alcohol is added.

Syrupus Ferri Saccharati Solubilis.—The process of making this preparation was simplified; saccharated ferric oxide is used, while in N. F. III it had to be recently prepared.

Spiritus Acidi Formici.—The amount of formic acid is increased.

Syrupus Glycyrrhizæ.—The amount of the fluidextract was doubled and the glycerin omitted.

Syrupus Papaveris.—Poppy capsules replace the tincture of poppy.

Syrupus Pini Strobi Compositus.—The morphine sulphate is omitted, cudbear is added.

Syrupus Quinidinæ.—Mucilage of acacia and solution of saccharin are omitted. Oil of orange and syrup is used in the place of syrup of orange flowers.

Syrupus Rhamni Catharticæ.—Fluidextract of rhamnus cathartica is used in place of the juice; oil of cinnamon and oil of fennel are added.

Syrupus Stillingiæ Compositus.—Glycerin is added.

Tinctura Amara.—The amount of gentian, centaury and bitter orange peel is increased, orange berries are omitted.

Tinctura Capsici et Myrrhæ.—The amount of capsicum and myrrh is slightly reduced.

Tinctura Ferri Citro-chloridi.—The amount of sodium citrate is increased.

Tinctura Persionis.—The amount of cudbear is reduced, menstruum is more alcoholic.

Tinctura Pimpinellæ.—The amount of pimpinella root is increased.

Tinctura Rhei Aquosa.—The sodium borate is omitted.

Unguentum Resorcinolis Compositum.—Rectified oil of birch tar is used in the place of oil of cade; yellow wax in the place of paraffin, anhydrous wool fat and glycerin in the place of hydrous wool fat.

Vinum Carnis.—The amount of alcohol is reduced.

Vinum Carnis et Ferri.—Iron and ammonium citrate is used in the place of the tincture citrochloride of iron.

The cry of the pharmacist is—why does the physician call for the ready-made preparation of some manufacturing house in preference to writing combinations of his own? Why has the art of prescription writing fallen into disuse? Why do compounded prescriptions, when prepared in one store, differ in size, shape and appearance from that prepared in another?

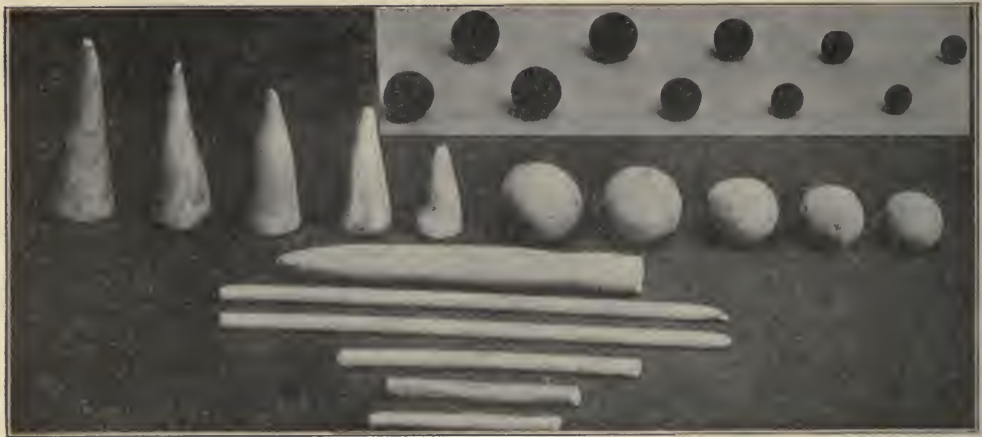

FIG. 1.—Showing various sizes of pills, suppositories, boluses and bougies prepared from the same prescription in different drug stores.

It is extremely desirable to have a rigid uniformity in the dispensing of prescriptions not only for *U. S. P.* and *N. F.* preparations, but in individual prescriptions written by the medical profession.

It is true that some physicians do not know how to write a prescription without giving some difficult problem to the pharmacist to solve. There are, however, a good many prescribers who do know how to write prescriptions and therefore expect the finished product to meet their wishes in every way and be put up in all stores alike. I have in mind especially pills, capsules, suppositories, globules, bougies, mixtures and tablets, etc. These usually differ within wide limits as to size, shape and consistency when compounded by different pharmacists.

I have collected a good many samples at several examinations in practical pharmacy and I have observed the extraordinary lack of uniformity in this regard. This was so noticeable that out of 75 examinations only a small percentage turned out preparations that were in any way uniform as to size and appearance. The Pharmacopœia distinctly prescribes the amount of cacao butter to be used (unless otherwise specified) and there is no reason why one suppository should weigh twice as much and sometimes even four times as much as another. The same applies to pills, etc. As a matter of fact, every *text-book contains full directions* about these elementary matters. Why not consult these? They are always or should always be on hand. Why should the same preparation dispensed in one store differ from that dispensed in another? Why should there not be a uniformity? Horace quotes as follows on uniformity: "*Servetur ad imum qualis ab incepto processerit, et sibi constet.*" "From first to last work should maintain its character and in all things be consistent."

DISCUSSION.

JACOB DINER: This paper is of practical value to the pharmacist, and of practical value now, and not in the future. It should be most interesting to every retailer in the United States, to have a brief synopsis of the changes made. The retailer is confronted with a problem that is difficult of solution. The Pharmacopœia is official, but only few pharmacists have a copy (at time of meeting). Of course, that is a theoretical question only; for no one can expect a man to have preparations corresponding to formulas with which he has no means of becoming familiar. It will soon be in his hands, however; and it will probably remain there, and not in his head. He will put it on the shelf; and when he comes to prepare a galenical, he will probably follow the new Pharmacopœia; but he may not investigate how this differs from the old. Nor will the physician know the difference. So I suggest that some means be found to bring this paper to early publication—if necessary, in one of our pharmaceutical journals; and that a reprint be sent to at least every member of the American Pharmaceutical Association.

CURT P. WIMMER: Would it not be just as important to bring the changes to the attention of physicians? Possibly some way could be found of circularizing physicians, or seeing that the paper is printed in the medical journals, as well as the pharmaceutical.

J. LEON LASCOFF: I think that physicians should be acquainted with the fact that there has been a new Pharmacopœia published. In New York State, we have a book printed called "*Formulas for the Busy Doctor.*" It contains fifty-nine formulas, and is going to be distributed among the physicians. Each pharmacist can purchase as many copies as he wants to. This has been done with the permission of the Revision Committee. While this book does not cover all the changes, this paper might be sent along with the booklet and in that way notify the physicians of the changes that have been made.

CHANGED ALKALOIDAL STANDARDS IN U. S. PHARMACOPŒIA IX.

BY A. B. LYONS.

For reasons which seemed to the members of the Revision Committee good and sufficient, the alkaloidal standards for a number of official preparations have been changed in the newly issued U. S. Pharmacopœia IX. The pharmacist consequently has on his shelves tinctures, fluidextracts and extracts which met the requirements of U. S. Pharmacopœia VIII, but which are no longer of official strength.

It is to be noted that the old standards, except in the single instance of preparations of opium, were inelastic. Extract of Nux Vomica should be found to contain 5 percent of strychnine; Tincture of Cinchona should contain in each 100 Cc. 0.75 Gm. of the ether-soluble alkaloids of Cinchona, etc., no maximum or minimum limits being prescribed. In the new Pharmacopœia, on the other hand, while in nearly all cases a definite standard is fixed for each product, a certain margin of variation from this standard is permitted. Thus, Extract of Nux Vomica is to be made to contain 16 percent of the combined alkaloids of the drug, but an extract may be dispensed which contains as much as 16.8 percent or as little as 15.2 percent of these alkaloids. Some will maintain that the minimum figure in each case will become the standard for the product. Unquestionably there will be a tendency towards this result, yet manufacturers of pharmaceutical products will keep in mind the facts, first, that variations in the results of alkaloidal assays, made even by experienced chemists, make it unsafe to adopt a minimum standard, as long as there are scores of drug inspectors keen to discover sub-standard products, and, second, that more or less deterioration occurs in galenical preparations, so that the leeway allowed by the Pharmacopœia is none too great in practice.

Hence in comparing the new standards with the old, it would be a mistake to take for the former the minimum figures of the text.

We shall be disappointed if we expect to gather any information about the intention of the Committee in fixing the new standard from a comparison of the average doses given in the text. As a rule we shall find that where there has been a change of even as much as 25 percent in the standard for a product, its average dose remains unchanged. But now and again we find changes in the dose where no change has been made in the standard.

In some cases it is impossible to fix an exact ratio between the old and new standards, owing to change in the basis of the standard. Thus for Cinchona preparations the basis is now simply the total alkaloids of the bark, whereas it was formerly the ether-soluble alkaloids, the proportion of which to the total alkaloids being exceedingly variable. Nux Vomica has heretofore been standardized on the basis of its content of strychnine. In the new Pharmacopœia the basis is the combined alkaloids of the drug, on the assumption that these consist of brucine and strychnine in equal proportions. An exact ratio between these bases cannot be predicated; the best we can do is to fix arbitrarily a ratio of 5 to 2 as a rough approximation to the truth.

Opium presents a difficulty in the fact that the new Pharmacopœia, conforming to the general practice in Continental Europe, adopts as its basis Anhydrous Morphine, whereas hitherto we have been accustomed to use morphine containing one molecule (over six percent) of water of crystallization. Heretofore powdered opium (the "opium" recognized in the Harrison Narcotic Law) has been required to contain not less than 12 nor more than 12.5 percent of crystallized morphine. These figures would correspond respectively with 11.28 and 11.75 percent of anhydrous morphine, average 11.52 percent. The new standard is not less than 10 nor more than 10.5 percent anhydrous morphine, average 10.25; but this latter figure has not been made explicitly and authoritatively *the* standard.

The Pharmacopœia provides only that opium of higher percent than 10.5 may be brought within the required limits by admixture with powdered opium of a lower percentage or with some inert diluent. This seems to give authority for making the actual standard as low as 10 percent, and inasmuch as this is the standard generally recognized in Europe, it seems highly probable that this will become by common consent the accepted standard in America. However, it will be as well here to assume the average figure of 10.25 percent—corresponding with nearly 10.77 percent of crystallized morphine—about seven-eighths the old standard.

During the next few months, there will be frequent occasion to reduce to the present official standard of strength preparations that were standardized in accordance with the U. S. Pharmacopœia VIII or to calculate the quantity of the old preparation equivalent to a prescribed amount of the new. In all such computations the average figures only should be used.

It is convenient to have at hand a table of ratios for the several preparations in question, by aid of which problems of this kind can be readily solved, and such a table is here offered.

ILLUSTRATIONS OF USES OF THE TABLE.

I. To adjust the strength of a fluid preparation of U. S. Pharmocopœia VIII to the new standard:

(*A*) If the new standard is lower than the old, simply add of the menstruum used in making the preparation, the percent indicated in Column II of the table example. To adjust to the new strength (*i.e.,* 1 Gm. anhydrous morphine in 100 mils) one pint of tincture of opium, add 15.6 percent of diluted alcohol = (16 × 0.156 = 2.496 fluidounces =) 2 fluidounces + 238 minims, making 18 fluidounces, 238 minims.

(*B*) If the new standard is higher than the old, the volume of the fluid must be reduced by the percentage amount indicated in Column II of the table. The method of procedure is as follows: Take out from the tincture or fluidextract double the percentage quantity shown in the table, evaporate this to a thin syrup and add enough alcohol to bring the volume to one-half what it was originally and add this to the remainder of the original fluid. The proportion of alcohol in the product will not vary greatly from that in the original fluid. It is not advisable, however, to make the adjustment in this manner in the cases of fluidextracts of Ipecac and Jaborandi, where the difference in standard exceeds 20 percent.

Example.—To adjust to the new standard one fluidounce of tincture of belladonna root take out 22.2 percent (twice the 11.1 percent given in the table) =107 minims; evaporate this to a thin syrup and add alcohol to make up a measure of 53.5 minims (=107÷2) and add this to the remainder of the original fluid, making a total volume of 426½ minims.

II. The strength of a solid preparation can be adjusted to the new standard only when that standard is lower than the old, the adjustment being made by adding the requisite percent from Column II of the table of glucose or milk sugar as the case may be.

III. To find the quantity of a product made in accordance with U. S. P. VIII that is the equivalent of a given quantity of the corresponding official product U. S. P. IX, use the data of Column II of the table.

Example.—Required the equivalent old formula, of 275 minims of Fluidextract Ipecac, U. S. P. IX. According to the table add 33⅓ percent (275 × 0.333 = 91.7 minims); 275 + 91.7 = 366.7—practically 367 minims. Required the equivalent old standard of 4 fluidounces (1920 minims) of official Tincture of Opium. By the table, subtract 13.5 percent (1920 × 0.135 = 259 minims.); 4 fluidounces – 259 minims = 3 fluidounces 221 minims.

TABLE OF RELATIONS OF OLD TO NEW U. S. P. ALKALOIDAL STANDARDS:

Preparation	Column I Old to new (product).	Column II New to old (equiva ent).
Extract Belladonna Leaves	+ 12 percent	— 11.6 percent
Extract Hyoscyamus	+ 20 percent	— 16.7 percent
Extract Nux Vomica	— 22 percent	+ 28 percent
Extract Opium	— 6 percent	+ 6.3 percent
Powdered Opium	+ 13.8 percent	— 12.1 percent
Fluidextract Aconite	— 20 percent	+ 25 percent
Fluidextract Belladonna Root	— 11.1 percent	+ 12.5 percent
Fluidextract Cinchona	Indeterminate	Indeterminate
Fluidextract Guarana	— 12.5 percent	+ 14 percent
Fluidextract Hyoscyamus	— 11.5 percent	+ 13.3 percent
Fluidextract Ipecac	— 25 percent	+ 33.3 percent
Fluidextract Pilocarpus	— 33.3 percent	+ 50 percent
Tincture Aconite	— 10 percent	+ 11.1 percent
Tincture Belladonna Leaves	+ 16.7 percent	— 14 percent
Tincture Cinchona	Indeterminate	Indeterminate
Tincture Hyoscyamus	+ 8 percent	— 7 percent
Tincture Opium	+ 15.6 percent	— 13.5 percent
Tincture Opium Deodorized	+ 15.6 percent	— 13.5 percent
Tincture Physostigma	+ 6.7 percent	— 6.3 percent

When a regiment is under march, the rear is often thrown into confusion because the front does not move steadily and without interruption. It is the same thing with business. If that which is first in hand be not instantly, steadily and regularly dispatched, other things accumulate behind, till affairs begin to press all at once, and no human brain can stand the confusion.—*Walter Scott.*

THE SCOPE AND POSSIBLE USES OF THE RECIPE BOOK.*

BY MARTIN I. WILBERT.

With the recognition that was accorded the National Formulary under the Food and Drugs Act, June 30, 1906, that publication was deprived of its previously important function of serving as a medium for developing unofficial formulas for preparations of limited use or imperfect composition. At the meeting of the Committee on National Formulary in Hot Springs, Arkansas, in 1908, the need for a publication that would answer as a repository for antiquated, or out-of-date formulas and at the same time serve as a clearing house for undeveloped formulas for preparations of a complex nature, was discussed by Mr. H. P. Hynson, of Baltimore, who was the first to suggest the practicability of compiling and publishing a book of unofficial formulas for preparations of comparatively limited use.

The question was formally presented to the Council of the American Pharmaceutical Association in July, 1909 (Bulletin of the American Pharmaceutical Association, v. 4, p. 246), after having been discussed at some length by the Baltimore Branch of the American Pharmaceutical Association, which branch, evidently on the suggestion of Mr. Hynson, adopted a resolution which reads in part as follows:

> RESOLVED, That the parent body be requested to consider the advisability of publishing a General Recipe Book, with frequent supplements to contain all formulas dropped from the U.S.P. and N.F. and such other formulas as may be useful to pharmacists.

A communication embodying this resolution was later presented at a summer meeting of the Philadelphia Branch of the American Pharmaceutical Association, at Atlantic City, and published in the Bulletin of the American Pharmaceutical Association, (1909, v. 4, p. 425). The idea of a Recipe Book was promptly endorsed by that intrepid champion of professional pharmacy, Prof. Otto Raubenheimer of Brooklyn, who in his address as Chairman of the Section on Practical Pharmacy and Dispensing, in 1910, heartily approved of the publication of a Recipe Book in his concluding recommendation as follows:

> I would earnestly recommend that the Association publish a "recipe book" as originally proposed (Bulletin Aug., 1909, p. 248) by Professor Hynson, the father of the Section of Practical Pharmacy and Dispensing. Much has been said pro and con in our Committee on Unofficial Standards, to whom this matter was referred, but you will find that the practical pharmacists on this committee are in favor of such a book. A "recipe book" of reliable formulas of unofficial preparations is badly needed in the United States, and it is the duty of the American Pharmaceutical Association to go on record and publish such a book, which incidentally might be a source of additional revenue.

The Committee on Chairman's address unanimously approved the several recommendations made by the Chairman and recommended that they be referred to the Council of the American Pharmaceutical Association for further consideration.

The question of a Recipe Book was later referred to a special committee to investigate the advisability of publishing a druggists' recipe book, to define its scope and character and to submit plans and details for the consideration of the

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*Read before the Section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City Meeting, 1916.

Council and the general association. This committee reported at the Boston meeting of the American Pharmaceutical Association (Bulletin A.Ph.A., 1911, v. 6, p. 261). This report expresses the opinion that (1) there is need of an authentic collection of reliable formulas of unofficial galenical preparations. (2) such a recipe book should be progressive and helpful and should include formulas for things which are useful. (3) It is recommended that a department on pharmaceutical formulas be established in the new JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, and that all the formulas be first published in the JOURNAL. In order to make this department a success and a help to pharmacy, the hearty cooperation of the members of the American Pharmaceutical Association is solicited. This report was signed by Otto Raubenheimer of Brooklyn, as chairman.

The second number of the JOURNAL (1912, v. 1, 169–173), contains the first instalment of formulas, many of them contributed by the Chairman of the Committee. During this same year, 5 additional instalments of formulas were printed in the JOURNAL, making a total of 114 formulas.

The Recipe Book, as outlined in the first report of the Committee, by Mr. Raubenheimer, was intended to have two important and distinctly different functions. It was to serve in the first place as a repository for formulas rejected from previous editions of the U.S.P. and N.F. and (2) to present intact and without change formulas for preparations included in foreign pharmacopœias and formularies which are often prescribed and for which the pharmacist might make legitimate propaganda. The second function of the Recipe Book was that it serve as a means for developing and improving suggestive formulas for a variety of preparations including toilet articles such as cosmetics and perfumes; articles for technical purposes like battery fluid and photographic developers, articles for agriculture and household purposes such as insecticides, fungicides and sprays, and finally the possible development of formulas for soda water syrups and related substances. The preliminary publication of formulas in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION was designed to accomplish two things: (1) To bring the formulas to the attention of the members of the Association, and (2) to interest the members of the Association in the perfection of formulas of a suggestive nature.

H. P. Hynson, in a comprehensive report, made at the meeting of the American Pharmaceutical Association at Detroit, in 1914, (JOUR. AM. PHARM. ASSOC., v. 3, p. 1302–1308), outlined the scope and discussed the possible value of this book. His ideal of the Recipe Book was that it serve as " a storehouse, repository, a resting place; in some respects, a museum to care for and hold for use, for reference, certainly for preservation, all the medical formulas that are worth while, that have no place in authorized books of formulas. No formula should be included that has not been in more or less general use for five years and its genuineness and trustworthiness, as to identity, should be assured. When once admitted, it becomes the authoritative formula for the preparation under the name of which it is written being, thus, a guide for all concerned. . . . All formulas introduced into the repository, of accepted recipes should be prefaced with a concise history, giving the source, local connections and former placement, if any. Other offerings for the same title may be subsequently introduced, but always with explanatory notes of contest and with the names and arguments of contestants. Modifications of formulas may be accepted, but these must never lead to the slightest change of the original; they must be exhibited as modified recipes with explanatory notes showing the reason for the modification and its author.

"The source of these recipes should be as follows: (*a*) Deletions from the Pharmacopœias, including the revision of 1870, and those from all subsequent editions. Deletions from all the editions of the National Formulary, also the originals of the remaining, in subsequent editions of those works, when the revised formulas show marked changes in strength or structure; (*b*) popular formulas published in recognized medical and pharmaceutical authorities; (*c*) selections from medical and pharmaceutical journals; (*d*) private contributions."

Because of stress of other duties, particularly the revision work of the National Formulary and the Pharmacopœia, activities in the way of compiling and publishing formulas were discontinued and it was not until the reorganization of the committee in 1915 under the active leadership of Prof. Otto Raubenheimer that the publication of formulas was again undertaken. The first instalment of formulas by the reorganized committee appeared in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION for March 2, 1916, pages 309–310 and contributions have appeared regularly since then in instalments of from 2 to 4 pages of formulas. The total number of formulas to date aggregates 285 and their nature varies from reprints of formulas from earlier pharmacopœias to dissertations on how to kill moths. The source includes formulas from foreign pharmacopœias, from hospital formularies and other unofficial formularies and a number of practical technical formulas that have been copied from special journals or originated by members of the Committee or by other members of the American Pharmaceutical Association.

The value of a Recipe Book of the kind outlined by Mr. Raubenheimer some years since, cannot be gainsaid; no publication of the association could possibly contribute as much toward inducing pharmacists of this country to exploit their own preparations in a legitimate field as would an authoritative list of suggestive recipes for preparations of accepted value.

Few will deny that the present-day pharmacist has lost much of his standing in the community in which he lives by having degenerated into a small tradesman rather than retaining his position as confidential adviser in a variety of subjects relating to his calling.

As an illustration of the opportunities that have been lost to pharmacists in this country it will suffice to call attention to the fact that during recent decades the trade in toilet articles has developed by leaps and bounds. The Bureau of the Census of the United States is authority for the statement that from a total value of products aggregating slightly more than two million dollars in 1879, the value of perfumes and cosmetics at the manufacturing establishments in 1914 amounted to more than nineteen million dollars. With this tremendous increase in the value of toilet preparations as manufactured, the proportionate amount of this line handled in the drug trade of the country, during the corresponding period, has probably decreased rather than increased. This is largely due to the fact that retail druggists have made no attempt to retain their hold on preparations of this type but have allowed the trade to drift to the beauty specialist, the barber and the department store.

It is probable that with no class of preparations is there as much opportunity for the development of individuality as in connection with toilet preparations of various kinds and if the Recipe Book would do nothing more than regenerate interest in preparations that may be classed as toilet preparations with a view of establishing a number of formulas of accepted merit, it would be doing an excellent service to the people as well as the druggists of the country. It has repeatedly been asserted that there are few if any preparations that are a greater source of danger to the user than the so-called toilet preparations that are on the market at the present time. This is particularly true of the preparations used as hair dyes and many of the preparations advertised and sold as cosmetics.

In an article on cosmetics prepared more than a year ago I presented a review of the reported harmful effects of the ordinary constituents of widely used cosmetics. The controversy that has been aroused by this article, in the light of additional evidence that has been brought to my attention, has convinced me that not half of the story has as yet been told and that the members of the drug trade at large have been remiss in their duties in that they have failed to warn the women of the country against the possible untoward effects from the repeated use of poisonous cosmetic preparations.

Formulas for articles of a technical nature, like battery fluid and photographic developers, are so evidently necessary and so eminently fitted for development in the drug store that there can be no difference of opinion in regard to their relative merits as a legitimate branch of the drug trade. Among other preparations, for which formulas could well be developed by pharmacists are a variety of articles for agricultural and household purposes such as fungicides, insecticides and sprays. The several insecticide laws now in force are evidence of the widespread interest in preparations of this type, and there is no good reason why the pharmacist should not supervise and practically control the sale of preparations for the several purposes enumerated above.

Regarding formulas for syrups and preparations to be dispensed at the soda water fountain there may be some difference of opinion but in view of the fact that by far the greater number of retail drug stores specialize, to some extent at least, on soda water and other preparations dispensed at the fountain, it would appear reasonable that formulas of this kind be also included in the Recipe Book. On the whole, it may be said without controversy that the perfecting of formulas for legitimate preparations should be a delight to every man who is earnestly interested in his business or profession. Having made a material improvement in a formula, the pharmacist should be willing to give the benefit of his experience to others, and thus himself be benefited in turn by the broader criticism that will be available.

As suggested by Mr. Hynson, the publication of a Recipe Book in a permanent form should not be undertaken until the several formulas have been thoroughly well tried out and their relative value established. This would leave for publication at the present time only such formulas as have been deleted from recent revisions of the Pharmacopœia or from the several editions of the National Formulary and a comparatively few formulas printed up to date that have been copied from foreign pharmacopœias. In connection with the bulk of the formulas so far published a period of some years should elapse before they are included in a separate publication and the question naturally arises how are the several formulas to be made accessible for use by druggists who would have occasion to consult and use them.

As a practical solution of the problem, I would suggest that the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION publish a collective index to the formulas as printed in the JOURNAL up to the present time, and that this collective index be continued from year to year until such time as the Association directs that a compilation from the published formulas be prepared and printed in book form. Following the publication of such a volume, the index might then again be resumed and continued for the period of a decade or more, enumerating, however, only the formulas not included in the completed volume. To make the volumes of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION a part of the every-day needs of the practical druggists, I would include in this index all formulas that are included in the Journal, irrespective of whether they have been endorsed by the Committee on Recipe Book or not. This would serve as an added incentive for more members of the Committee to contribute formulas that have been found to be of value.

The formulas contributed by the Committee that have been printed to date appear as follows:

Formula No. 1– 22, Journ. Am. Pharm. Assoc., 1912, v. 1, p. 169– 173
Formula No. 23– 30, Journ. Am. Pharm. Assoc., 1912, v. 1, p. 366– 368
Formula No. 31– 41, Journ. Am. Pharm. Assoc., 1912, v. 1, p. 505– 506
Formula No. 42– 50, Journ. Am. Pharm. Assoc., 1912, v. 1, p. 637– 638
Formula No. 51– 77, Journ. Am. Pharm. Assoc., 1912, v. 1, p. 761– 765
Formula No. 78–114, Journ. Am. Pharm. Assoc., 1912, v. 1, p. 1307–1314
Formula No. 115–127, Journ. Am. Pharm. Assoc., 1916, v. 5, p. 309– 310
Formula No. 128–161, Journ. Am. Pharm. Assoc., 1916, v. 5, p. 422– 425
Formula No. 162–189, Journ. Am. Pharm. Assoc., 1916, v. 5, p. 529– 532
Formula No. 190–217, Journ. Am. Pharm. Assoc., 1916, v. 5, p. 631– 634
Formula No. 218–248, Journ. Am. Pharm. Assoc., 1916, v. 5, p. 740– 743
Formula No. 249–285, Journ. Am. Pharm. Assoc., 1916, v. 5, p. 862– 865

For the benefit of such as may be actively interested in the subject, I beg to call renewed attention to the appended references to the Recipe Book based on the list compiled originally by Mr. H. P. Hynson.

Bulletin of the A. Ph. A.

Vol. IV.
    No. 8, p. 248
    No. 10, p. 329 and 331
    No. 11, p. 425
Vol. V.
    No. 6, p. 352
    No. 8, p. 454
    No. 9, p. 485
    No. 11, p. 538 and 541
Vol. VI.
    No. 6, p. 261

Journal of the A. Ph. A.

Vol. I.
    No. 2, p. 168
    No. 4, p. 368
    No. 5, p. 405
    No. 6, p. 637
    No. 9, p. 902
    No. 11, p. 1324
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Vol. III.
    No. 2, p. 189
    No. 9, p. 1302
Vol. IV.
    No. 10, p. 1178
    No. 11, p. 1374
Vol. V.
    No. 3, p. 318

Pharmaceutical Formulas

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in The Journal, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

Otto Raubenheimer, Brooklyn, N. Y.

Contributed by M. I. Wilbert, Wash., D. C.:

No. 315.

FLY KILLER.

For flies, Prof. Lefroy in a recently published pamphlet suggests a mixture of treacle and sodium or potassium arsenite with water. For inside treatment, as Doctor Gordon Hewitt has pointed out, the Minnesota fly trap is perhaps as useful as any, while the burning of feathers or pyrethrum powder will drive flies out of a room, as also cresol vaporized by heating, a tablespoonful of which is sufficient for a moderately sized room. To protect a room from the entrance of flies, coarse wire gauze with eight meshes to an inch is quite sufficient. The formula as given is:

Treacle (Molasses)	100 Gm.
Sodium or Potassium Arsenite	20 Gm.
Water	1000 mils

(*Brit. M. J.*, 1915, vol. i, p. 1006.)

No. 316.

LICE REMEDY.

Crude Oil Emulsion.

To rid one's self of lice, Professor Lefroy in a recently published pamphlet recommends smearing the skin or washing the clothes with "Crude Oil Emulsion," the formula of which is as follows:

Crude Petroleum	56 Gm.
Soft Soap	30 Gm.
Water	about 6 mils

Triturate soap and water to a smooth paste, and gradually add the crude oil.

This should be rubbed into the hair and applied to all clothing that touches the skin. As it contains a large quantity of soft soap it can be used as a soap, which should be allowed to some extent to dry on the skin. The same emulsion should be used when washing clothes. Verminous clothing should be boiled in water or treated with steam. The author points out that this preparation is non-poisonous and may be retained on the skin indefinitely.

(*Brit. M. J.*, 1915, vol. i, p. 1006.)

Contributed by the Chairman:

No. 317.

FORMALDEHYDE FLY KILLER.

Solution of Formaldehyde	15 mils
Water	1000 mils

This solution has the great advantage of being practically non-poisonous to human life.

Put into saucers. The flies will drink it and die.

(*Lancet.*)

No. 318.

DICHROMATE FLY KILLER.

Potassium or Sodium Dichromate	4 Gm.
Sugar	4 Gm.
Water	60 mils

Place in shallow dishes. Keep out of reach of children.

(N. Y. Health Board.)

No. 319.

FLEA POWDER.

Non-Poisonous for Cats and Dogs.

(Raubenheimer.)

Boric Acid,	
Sublimed Sulphur, of each	30 Gm.
Naphthalene	60 Gm.
Insect Powder	120 Gm.
Oil of Pennyroyal	2 mils

No. 320.

KILL-FLEAS.

For Dogs.

(Raubenheimer.)

Oil of Wormwood	8 mils
Oil of Pennyroyal,	
Oil of Sassafras, of each	15 mils
Spirit of Camphor	60 mils
Soluble Crude Carbolic Acid No. 127A	500 mils
Benzin, a sufficient quantity,	
To make	1000 mils

The correct formula for Soluble Crude Carbolic Acid No. 127A (not 127) will be found in J. A. Ph. A., April, 1916, p. 425.

Kill-Fleas is to be diluted with water, about 1 tablespoonful to 1 pint, and then applied to the dog.

A small amount put into the bath of the dog will keep away fleas.

No. 321.

MODELLING CLAY.

Wheat Flour	1 part
Powdered Soapstone	2 parts
Paraffin	3 parts

Mix the melted paraffin with the powders. If too hard, then add some liquid petrolatum.

This preparation is the equal of the patented clays and can be colored with oil soluble aniline dyes.

(*Spatula,* through *Sc. Am. Suppl.,* No. 2107.)

No. 322.

PAINT REMOVERS.

These preparations are applied with a brush. If necessary several coats are given until the paint is so loosened that it can be easily scraped or washed off.

The simplest preparations are solutions of paraffin in benzin. Castor oil or cocoanut oil is usually added to retard the evaporation of the solvent. Other solvents are acetone, amyl alcohol, carbon disulphide, carbon tetrachloride and ethane tetrachloride.

They can either be used by themselves or mixed into a paste with powdered pumice.

The following two types are formulas of patented preparations.

I.

Stronger Ammonia Water	60 mils
Liquid Petrolatum	120 mils
Soft Soap	375 Gm.
Sal Soda	500 Gm.
Lime Water	2000 mils

II.

Potassium Hydroxide	500 Gm.
Acetone	1000 mils
Denatured Alcohol,	
Oil of Turpentine,	
Benzin, of each	500 mils
Castor Oil	300 mils

Apply by spreading thinly over the old paint. After a few minutes make a second application, when the softened paint can be easily removed with a blunt spatula.

(*Spatula,* through *Sc. Am. Suppl.,* No. 2107.)

No. 323.

EBONY STAIN.

A.

Solution Sodium Dichromate	10 percent

B.

Saturated Solution Gallic Acid.

The wood, previously smoothed by sandpaper, is brushed over with the hot solution A. The solution should be used sparingly, so as not to leave any salt on the surface.

When dry the hot solution B is applied in the same manner. These two operations are repeated until the desired degree of blackness is obtained. A dull ebony finish is obtained by rubbing with a rag and just a trace of oil. A bright surface will be produced by varnish.

(D. C., 1916, p. 337.)

Contributed by Rudolph Lundgren,
Youngstown, Ohio:

No. 324.

TRIPLE WATER.

Camphor Water,
Peppermint Water,
Lime Water, equal volumes.

Mix them.

A general favorite for correction of nausea at the institutions mentioned below.

(McKeesport Hospital, Pa.)
(Cleveland City Hospital, Ohio.)

No. 325.

SYRUPUS CODEINÆ COMPOSITUS.

Compound Syrup of Codeine.

Codeine Phosphate	1 Gm.
Terpin Hydrate	1 Gm.
Fluidextract of Ipecac	2 mils
Fluidextract of Eucalyptus	5 mils
Fluidextract of Squill	7 mils

Tincture of Cudbear	8 mils
Glycerin	20 mils
Sugar	375 Gm.
Distilled Water, a sufficient quantity,	
To make	500 mils

Dissolve the finely powdered terpin hydrate in the mixed fluidextracts, tincture and glycerin. Pour this into 200 mils of water in which the codeine phosphate has been previously dissolved. Filter this liquid through a wetted filter into a properly prepared percolator containing the sugar, and add sufficient water through the percolator until 500 mils are obtained.

(McKeesport Hospital.)

No. 326.

TUBERCULIN OINTMENT.

Old Tuberculin, "O. T."	10 mils
Hydrous Wool Fat	10 Gm.

Mix them thoroughly.

For diagnostic use.

(Cleveland City Hospital.)

No. 327.

NUTRITIVE TONIC.

Neoferrin.

Solution of Arsenous Acid	1 mil
Extract of Malt	40 mils
Solution of Iron, Peptonate with Manganese, a sufficient quantity,	
To make	100 mils

Mix the arsenical solution with about 40 mils of the other solution, add the extract and sufficient of the iron solution to make the product measure 100 mils, and mix them thoroughly.

(McKeesport Hospital.)

No. 328.

SOLUTION OF ATROPINE SULPHATE.

Salicylic Acid	1 Gm.
Atropine Sulphate	8 Gm.
Distilled Water, a sufficient quantity,	
To make	400 mils

Dissolve and filter.

No. 329.

SOLUTION OF SODIUM ACID PHOSPHATE.

Boric Acid	1 Gm.
Sodium Acid Phosphate	20 Gm.
Distilled Water, a sufficient quantity,	
To make	40 mils

Make a solution.

For rendering the urine acid in reaction prior to treatment with hexamethylenamine, which chemical is only active in acid urine.

By sodium acid phosphate is meant monosodium acid phosphate or monobasic sodium phosphate, or sodium dihydrogen phosphate, or sodium biphosphate with the chemical formula $NaH_2PO_4 + H_2O$. Further particulars about this chemical can be found in *N.N.R.*, 1916, p. 352.

Contributed by Th. D. Wetterstroem,
Cincinnati, Ohio:

BUCKEYE FORMULAS.

The following formulas for the Buckeye line of preparations have been approved by the Committee on Unofficial Formulæ for 1914–1915 of the Ohio State Pharmaceutical Association.

These formulas are quite simple, so that the members will have no difficulty in following them.

The selling price of these preparations is given, and the members of the Ohio State Pharmaceutical Association are requested to comply with the quantities and the prices stated.

No. 330.

BUCKEYE BLOOD PURIFIER.

Fluidextract Trifolium	80 mils
Fluidextract Burdock	40 mils
Fluidextract Berberis	40 mils
Fluidextract Cascara Sag.	40 mils
Fluidextract Phytolacca	40 mils
Fluidextract Xanthoxylum	10 mils
Potassium Iodide	20 Gm.
Aromatic Elixir, a sufficient quantity,	
To make	1000 mils

Twelve ounces for 75 cents.

No. 331.

BUCKEYE KIDNEY AND LIVER REMEDY.

Fluidextract Buchu	75 mils
Fluidextract Juniper	15 mils
Fluidextract Cubeb	15 mils
Tincture Bitter Orange Peel	15 mils
Potassium Acetate	90 Gm.
Fluidextract Podophyllum	25 mils
Tincture Cinnamon	50 mils
Aromatic Elixir, a sufficient quantity,	
To make	1000 mils

Mix and filter.

Six ounces for 50 cents.

No. 332.

BUCKEYE NERVE AND BONE LINIMENT.

Capsicum	15 Gm.
Menthol	4 Gm.
Oil Sassafras	8 mils
Coal Oil	500 mils

Mix and filter.

Three ounces for 25 cents.

No. 333.

BUCKEYE SORE THROAT REMEDY.

Potassium Chlorate	6 mils
Tincture Iron Chloride	8 mils
Glycerin	30 mils
Antipyrine	0.12 Gm.
Water, a sufficient quantity,	
To make	120 mils

Misc. sec. art.

Three ounces for 25 cents.

No. 334.

BUCKEYE PALATABLE CASTOR OIL.

Castor Oil	1000 mils
Saccharin	1 Gm.
Methyl Salicylate	4 mils
Alcohol	25 mils
Oil of Cassia (drops 2)	0.1 mil
Oil of Anise (drops 2)	0.1 mil

Dissolve the saccharin and the oils in the alcohol and add to the castor oil.

Three ounces for 25 cents.

No. 335.

BUCKEYE SALINE LAXATIVE.

Potassium Sulphate	10 Gm.
Sodium Chloride	90 Gm.
Sodium Bicarbonate	180 Gm.
Sodium Sulphate, dried	220 Gm.
Magnesium Sulphate, dried	125 Gm.
Sodium Phosphate, dried	250 Gm.
Tartaric Acid, dry	125 Gm.

Mix. Keep in well-stoppered bottles.

Four-ounce screw-cap bottle for 20 cents.

No. 336.

BUCKEYE WORM SYRUP.

Aromatic Fluid Senna, Cin. A. P. No. 337 or 338	75 mils
Fluidextract Spigelia	25 mils

Two and a half ounces for 25 cents.

No. 337.

FLUIDEXTRACTUM SENNÆ AROMATICUM.

Aromatic Fluidextract of Senna.
(Cin. A. P.)

Senna in No. 40 powder	1000 Gm.
Sugar	500 Gm.
Oil of Coriander	0.75 mil
Alcohol,	
Diluted Alcohol, of each, a sufficient quantity,	
To make	1000 mils

Extract the senna by percolation with alcohol until exhausted, and reject this alcoholic percolate which contains the resin or griping principle. Remove the senna from the percolator, dry it and then in the usual manner prepare a fluidextract by percolation with diluted alcohol. Evaporate the alcohol from the fluidextract on a water-bath, dissolve the sugar in the remaining portion and add sufficient water to make 1000 mils. Lastly add the oil of coriander and mix thoroughly.

NOTE.—This preparation contains very little or no alcohol. It has the strength of a fluidextract with the properties of a syrup, and is therefore especially adapted for children.

Dose: 4 to 8 mils.

No. 338.

AROMATIC FLUID SENNA.

Alternate Formula.

Should the Cincinnati Academy of Pharmacy formula for the Senna preparation not be available, then use this formula.

Senna, broken pieces	1000 Gm.
Boiling Water	4000 mils

Allow to digest for one hour and strain. Add 500 mils boiling water to dregs and strain. To the strained liquids add Sugar 500 Gm. and heat in evaporating dish over water-bath until the liquid has evaporated to 1000 mils. Cool and add Oil Coriander, 0.75 mil. Mix and strain.

No. 339.

BUCKEYE CORN REMEDY.

Compound Salicylated Collodion, N. F.
Two drachms for 15 cents.

No. 340.

BUCKEYE CORN PLASTER.

Salicylic Acid and Cannabis Indica Plaster, two pieces, each 1 by 1½ inches, for 10 cents.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

NASHVILLE

The Nashville Branch Meeting of the American Pharmaceutical Association was held in joint session with the Nashville Drug Club in the Life and Casualty Building, when D. J. Kuhn, president of the Nashville Drug Club, presided. The minutes of the previous meeting were read and approved. Dr. E. A. Ruddiman reported on the meeting of the American Pharmaceutical Association held in Atlantic City, September 5 to 9. He stated that while the number in attendance was very much reduced on account of the threatened railway strike, it was a very successful meeting; many valuable papers were presented. The consensus of opinion among the members was that higher educational requirements should be exacted of those who enter the profession. The Committee on Prerequisite Laws made a strong argument in favor of such legislation.

It was reported that Dr. J. O. Burge had been elected honorary president of the American Pharmaceutical Association, and Mrs. E. A. Ruddiman chosen president of the Women's Section. The Branch expressed its pleasure in these elections.

Ira B. Clark reported at length the transactions of the recent meeting of the National Association of Retail Druggists held in Indianapolis. A large part of the transactions were concerned with legislative matters and Mr. Clark reviewed many of the laws and bills that were advocated. He stated that laws had been passed in the states of Washington and Florida imposing a tax on distributers of trade coupons and predicted that similar laws would be proposed in other state legislatures.

The propaganda work on the U.S.P. and N.F. preparations received considerable attention. Mr. Clark reported that the Detroit Local Druggists' Association employed a pharmacist to manufacture samples of such products and for doing detail work among the physicians of Detroit. For the purpose of carrying on this work each member of the Association pays $25 a year.

The resignation of E. F. Trolinger as secretary of the Nashville Drug Club was accepted and William R. White elected to fill the vacancy.

Dr. J. O. Burge read a paper in which he urged larger accessions to the American Pharmaceutical Association.

WILLIAM R. WHITE,
Secretary.

WHAT ARE THE OBJECTS AND AIMS OF THE NASHVILLE DRUG CLUB AND THE NASHVILLE BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.*

BY J. O. BURGE.

What are the objects and aims of the two organizations, the Nashville Drug Club and the Nashville Branch of the American Pharmaceutical Association? My interpretation of the advantages derived by a membership in the Nashville Drug Club is that by meeting together at regular stated intervals we have an opportunity of discussing with each other the problems that arise in our daily business, which are of material interest, and we can exchange ideas as to the best methods of meeting and overcoming the same. We are all engaged in the same calling and persuing the same objects—health, happiness and three square meals a day. To attain success at it, we must cut out selfishness, dishonesty and unfair dealing, and pull together for the common cause; then we have a chance to accomplish something and get what we go after.

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* Read before joint meeting, Nashville Branch A. Ph. A. and Nashville Drug Club.

The prime object of the "Club Organization" is to look after the commercial side of pharmacy, to see how and where we can buy to the best advantage, to find how we can sell for a fair profit, and protect ourselves from "dead beats" and slow-paying customers. This is along the line covered by the National Association of Retail Druggists, and the name "Nashville N.A.R.D. Club" would not be inappropriate, and I would suggest its adoption. Then it could become representative of the National Association, occupying the same relation to that body that the Nashville Branch of the A. Ph. A. does to the American Pharmaceutical Association, thereby strengthening the power and influence of both organizations for securing reforms and legislation for the good of the calling, and fighting that which may be injurious and harmful. So much for the objects and aims of the "Club."

Now for what the A.Ph.A. Branch stands for. It is a representative of the American Pharmaceutical Association in Nashville and so far in the state of Tennessee. Through its Journal and Year-Book it brings Nashville pharmacists in direct touch with the leaders of their profession, with the very men who make the U.S.P. and N.F. The Branch represents the professional side of your business and if you will attend the meetings of the Branch and Club, which are held jointly now, and read the JOURNAL, you will be able to keep abreast of the times in both the professional and commercial side of your calling. A well-balanced man requires mental as well as physical training. It is as essential for you to keep up the professional side of your business as well as the commercial side. Don't get one sided. Did it ever occur to you that the neglect of the professional side of your business might be the cause of so many druggists losing out with the doctors. To get his attention and confidence you must talk pharmacy and medicine to the doctor every time you have an opportunity. This you cannot do intelligently and with effect unless you read and study the changes, and keep up with the improvements that are constantly being made in medicine and pharmacy. Join the Association and advertise yourself as a member of the A.Ph.A. on your stationery, prescription blanks, cards, etc., and thus bring prestige to your Association and honor to yourself. It will bring you respect and confidence from your trade if the physicians and the public are made to understand that "A.Ph.A." means an organization of the leading pharmacists of the world, and that you think enough of yourself and have enough interest and ambition in your profession and business to connect yourself through this agency with these leaders, and are thereby kept in direct touch with the best thought and methods of your calling. Be as quick and ready to advertise that you are a member of the A.Ph.A. as that you are an A.D.S., a Penslar, or a Rexall, and practice what you learn from the JOURNAL and *Year-Book,* and I will assure you it will be worth much more to you at the end of each year than are the three others put together. Come on, join the Association, have two nice signs, "Member of A.Ph.A.," made, put one over your prescription stand and the other at the front door, and watch for results, if you do your part as you should. Remember, this is like everything else. If you are going to succeed, you must meet old opportunity when he knocks.

COUNCIL BUSINESS

PROCEEDINGS OF THE COUNCIL, THIRD SESSION, 1915-1916.*

The third session of the Council of the American Pharmaceutical Association for 1915-1916 was held at the Hotel Chalfonte, Atlantic City, on Monday, September 4, 1916, at 8 P.M., Chairman E. G. Eberle presiding.

Present: Messrs. Alpers, Apple, Arny, Claus, Day, Eberle, Eldred, England, Freericks, Godding, Hilton, Holzhauer, Hynson, Koch, Snow, Stewart, Whelpley and Wilbert.

On motion of M. I. Wilbert, seconded by W. B. Day, the reading of the minutes of the previous two sessions and of the Council Letters that have been issued since were dispensed with.

Secretary England reported that Motion No. 58 of Council Letter No. 30, electing the applications for membership from Nos. 370 to 397 inclusive, had been carried.

Applications for membership, Nos. 398 to 422 inclusive, were presented to the Council and elected, as follows:

No. 398. Joseph Nathaniel Bongiovanni, 6th and Washington Ave., Philadelphia, Pa., rec. by E. Fullerton Cook and J. A. Roddy.
No. 399. Charles Bais Rhineheardt, Marshall, N. C., rec. by J. G. Beard and Wm. B. Day.
No. 400. Sam E. Welfare, Winston-Salem, N. C., rec. by J. G. Beard and Wm. B. Day.
No. 401. George R. Pilkington, Pittsboro, N. C., rec. by J. G. Beard and Wm. B. Day.
No. 402. Geo. A. Matton, 107 N. Main St., High Point, N. C., rec. by J. G. Beard and Wm. B. Day.
No. 403. John Henry Bechberger, Ph.G., corner Columbus Ave. and Washington Row, Sandusky, Ohio, rec. by Eugene R. Selzer and Wm. B. Day.
No. 404. Frederic Bernhard Brill, 2278 Main St., Stratford, Conn., rec. by Geo. A. Jamieson and John A. Leverty.
No. 405. Henry T. Hicks, 327 Hillsboro St., Raleigh, N. C., rec. by E. V. Howell and J. G. Beard.
No. 406. Edward Theodore North Stein, 90 Walnut St., Montclair, N. J., rec. by George M. Beringer and George M. Beringer, Jr.
No. 407. Harry Hays Williamson, Hospital Steward, U.S.N., U. S. Naval Training Station, Great Lakes, Ill., rec. by J. F. Rupert and Frederick Ludwig, M.D.
No. 408. Clarence Edward Ostrander, 326 Clinton Ave., Albany, N. Y., rec. by Albert B. Huested and G. V. Willenbach.
No. 409. Miguel Sanchez Silveira, 38 Otero Pimental, Manzanillo, Oriente, Cuba, rec. by Jose P. Alacan and Jose Guillermo Diaz.
No. 410. Walter W. Quillian, Oakley, Idaho, rec. by E. C. Bent and Wm. B. Day.
No. 411. H. Evert Kendig, 5328 Baynton St., Philadelphia, Pa., rec. by John B. Minehart and E. G. Eberle.
No. 412. George Thomas Williams, corner High and Broad Sts., Burlington, N. J., rec. by George M. Beringer and Edgar R. Sparks.
No. 413. Clyde L. Eddy, 100 William St., New York, N. Y., rec. by W. B. Day and J. W. England.
No. 414. Joseph C. Prote, Jr., 195 Main St., Astoria, N. Y., rec. by George C. Diekman and C. H. Wimmer.
No. 415. Joseph F. Paulonis, 454 Grand St., Brooklyn, N. Y., rec. by Joseph L. Mayer and H. V. Arny.
No. 416. Miss Mabel Barnhill, Bethel, N. C., rec. by J. G. Beard and Wm. B. Day.
No. 417. Paul A. Jatulevicius, 165 Elm St., Lawrence, Mass., rec. by C. A. Cronin and E. Daly.

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*The first and second sessions of the Council for 1915-1916 were held at San Francisco, Cal., on August 13, 1915.

No. 418. Thomas M. Williamson, 40 N. Market St., Frederick, Md., rec. by Wm. B. Day and H. A. B. Dunning.

No. 419. Edward J. Verneau, 147 Irving St., Rahway, N. J., rec. by Wm. B. Day and J. W. England.

No. 420. A. M. Thomas, Pharmacist, U.S.P.H. and M.H. Service, U. S. Marine Hospital, Port Townsend, Wash., rec. by Geo. F. Payne and Wm. B. Day.

No. 421. Raymond Hendrickson, 2100 Providence Ave, Chester, Pa., rec. by Wm. B. Day and J. W. England.

No. 422. John M. Jordan, 209 Rutledge Ave., Charleston, S. C., rec. by J. A. Koch and Wm. B. Day.

The following report was presented:

Members of the Council:

GENTLEMEN:

The Council held two sessions at the San Francisco (1915) meeting and has transacted business by mail since.

Thirty Council Letters have been issued covering 94 pages and 58 motions.

The members elected to date number 422; the number last year by the first session of the Council on August 9, 1915, was 283.

A synopsis of the motions of the Council is attached and will become a part of the records.

The membership of the Council numbers 41, of which 18 are representatives of local branches.

During the year three new local branches were formed—the Montana, the Indianapolis and the Cuban. The number of local branches now totals 20.

The three members of the Council elected by mail on November last, for 1916–1917, were: James H. Beal, Urbana, Ill.; William C. Alpers, Cleveland, O.; Harry B. Mason, Detroit, Mich.

Respectfully submitted,

J. W. ENGLAND, *Secretary of Council.*

SEPTEMBER 4, 1916.

SYNOPSIS OF MOTIONS OF THE COUNCIL, 1915–1916.

Motion No. 1. That a conference of the members of the Editing Committee and nearby members of the Committee on National Formulary be authorized to be held at Philadelphia during September or October of 1915 and that a sum not exceeding one hundred dollars be appropriated to pay the expenses of holding such conference. Carried.

Motion No. 2. Election of Members Nos. 1 to 5 inclusive. Carried.

Motion No. 3. Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy, with salary, etc. Ruled out of order.

Motion No. 4. Election of Prof. C. Lewis Diehl as Emeritus Reporter on the Progress of Pharmacy without salary, etc. Ruled out of order.

Motion No. 5. Vote of thanks passed to the Massachusetts College of Pharmacy and the National College of Pharmacy of the George Washington University, for donations of A. Ph. A. Proceedings to the Association. Carried.

Motion No. 6. Clarence G. Spalding elected a member of the Committee on Recipe Book, term to expire in 1918, to succeed John Roemer, deceased. Carried.

Motion No. 7. Election of Members Nos. 8 to 11 inclusive. Carried.

Motion No. 8. That Motion No. 4 of Council Letter No. 3 be laid on the table. Ruled out of order.

Motion No. 9. That Prof. C. Lewis Diehl be elected Emeritus Reporter on the Progress of Pharmacy and *ex officio* member of the Council. Ruled out of order.

Motion No. 10. That the balance of the honorarium voted Professor Diehl at the San Francisco (1915) meeting specifically, for work done on the National Formulary, Fourth Edition, be paid at once, under the conditions of the offer submitted by Hy. P. Hynson. Ruled out of order.

Motion No. 11. That the action of the Council at San Francisco in deciding "that an honorarium be voted to Prof. C. Lewis Diehl for his work on the National Formulary, Fourth

Edition, to be paid in two instalments, one instalment of $500 at once, and the other during the year 1916," be reconsidered in so far as relates to the second installment of $500, and that this latter be paid as soon as, in the judgment of the Treasurer and the Committee on Finance, the condition of the Treasury and the interests of the Association will permit. Carried.

Motion No. 12. Additional appropriations of $500.95 to cover expenses of 1913 *Year-Book.* Carried.

Motion No. 13. Election of Charles Holzhauer, of Newark, N. J., as Local Secretary for 1916, vice C. Mahlon Kline resigned. Carried.

Motion No. 14. That the Treasurer of the Association be authorized to purchase a $1000 St. Louis, 4 percent, 1928 registered bond at 98½, as an investment from the Ebert Prize Fund. Withdrawn.

Motion No. 15. Election of Members Nos. 12-21 inclusive. Carried.

Resolution received from the Local Branch of the American Pharmaceutical Association of Washington, D. C., that it is the sense of the Local Branch of the American Pharmaceutical Association of Washington, D. C., that the Council be authorized to elect three members, who, together with the Chairman and the Secretary of the Council, shall constitute an Executive Committee, this committee to be empowered to carry on the business of the Association as mapped out at its annual meeting during the intervals of the said annual meeting.

Motion No. 16. That the above resolution of the Washington Branch be approved by the Council and that the By-Laws of the Council be amended at the next annual meeting to provide for an Executive Committee of the Council with power to carry on the business of the Association along the lines indicated by the Washington Branch.

Motion No. 17. That a commission be appointed on the financial affairs of the American Pharmaceutical Association as recommended by the Washington Branch.

Motion No. 18. That resolutions on Whiskey and Brandy as submitted by the N.A.R.D. be referred to the Committee on National Formulary, as the subject matter is of a technical or scientific character and properly belongs within the scope of work of the Committee on National Formulary. Carried.

Motion No. 19. That the proposed action on Executive Committee of Council, as outlined in the first resolution of the Washington Branch (C. L. No. 8) and in Motion No. 16 be published in the JOURNAL, and that the opinion of the members of the Association thereon be invited, and that final action be taken at the forthcoming meeting at Atlantic City. Carried.

Motion No. 20. That we request our Finance Committee, with a special committee of five members to be appointed by the Chairman of the Council, to make a special study of the available assets and current expenses of the Association and see what suggestions they can make regarding the improving of the financial status of the Association.

Motion No. 21. That the volumes of the Proceedings for 1911, 1872, 1870, 1868 and all prior as far as stock permits, be presented as a gift from the Association to the Denver Branch in appreciation of the good work which the Denver Branch is doing for the Association and for pharmacy. Carried.

Motion No. 22. Additional appropriation of $100 for the budget item of printing, postage and stationery, appropriation approved by the Committee on Finance. Carried.

Motion No. 23. Adoption of Substituted N. A. R. D. Resolutions. That the four separate resolutions as submitted by the National Association of Retail Druggists be also adopted by the Council, substituting the name of the Council of the American Pharmaceutical Association for that of the National Association of Retail Druggists. Of course, this includes the one pertaining to denatured alcohol.

Motion No. 24. That the preamble and resolution adopted by the Scientific Section at the San Francisco meeting, looking toward a closer co-operation between educational, manufacturing and banking interests, as reported in Council Letter No. 9 (p. 31), be approved. Carried.

Motion No. 25. Expunging discussion on discontinuance of Prof. C. Lewis Diehl as Reporter on the Progress of Pharmacy from published minutes in JOURNAL. Carried.

Motion No. 26. That all references to the financial affairs of the Association as given in the Council Letters since the Annual Meeting at San Francisco in August, 1915, be expunged from the minutes of the Council, when published in the JOURNAL, except the motions. Carried.

Motion No. 27. Election of Members Nos. 22-32 inclusive. Carried.

PROPOSED BUDGET OF APPROPRIATIONS FOR 1916.

Appropriations for General Expenses:

No. 1.	Salaries	$6,150.00	
No. 2.	Printing, Postage and Stationery	1,000.00	
No. 3.	Clerical Expenses Secretary's Office	416.00	
No. 4.	Miscellaneous Expenses	200.00	
No. 5.	Stenographers	350.00	
No. 6.	Travelling Expenses	200.00	
No. 7.	Committee on Membership	250.00	
No. 8.	Committee on Unofficial Standards	100.00	
No. 9.	Year-Book	2,500.00	
No. 10.	Premium on Treasurer's Bond	50.00	
No. 11.	National Drug Trade Conference	100.00	
No. 12.	JOURNALS for Reporter	35.00	
No. 13.	Section on Scientific Papers	25.00	
No. 14.	Section on Education and Legislation	25.00	
No. 15.	Section on Commercial Interests	25.00	
No. 16.	Section on Practical Pharmacy and Dispensing	25.00	
No. 17.	Section on Historical Pharmacy	25.00	
No. 18.	Women's Section	25.00	
No. 19.	National Syllabus Committee	25.00	
			$11,526.00

Appropriations for Open Accounts:

No. 20.	JOURNAL		$5,750.00	
No. 21.	(*a*) Publication	$4,500.00		
	(*b*) Clerical Expenses	800.00		
	(*c*) Postage and Stationery	300.00		
	(*d*) Freight, Drayage and Miscellaneous	150.00		
No. 22.	National Formulary		1,000.00	
No. 23.	Badges and Bars		50.00	
No. 24.	Certificates		50.00	6,850.00
				$18,376.00

Motion No. 28. Approval of Budget of Appropriations for 1916. Carried.

Motion No. 29. Substitute Motion for Motion No. 23. Withdrawn.

Motion No. 30. Substitute Motion for Motion No. 23. Not carried.

Motion No. 31. Election of Members Nos. 33–55 inclusive. Carried.

Motion No. 32. Non-publication of "Memoranda" on National Formulary in Council Letter No. 13. Carried.

Motion No. 33. Election of Members Nos. 56–72 inclusive. Carried.

Motion No. 34. That the report of the Committee on Publication in Council Letter No. 17 be received, the resolution referred to reconsidered and the proposed resolution adopted. Carried.

Motion No. 35. That an appropriation of fifty dollars be made to the Committee on Recipe Book for the purpose of purchasing binders, perforated paper, etc. Carried.

Motion No. 36. That the Sixty-fourth Annual Meeting of the American Pharmaceutical Association be held during the week beginning Monday, September 4, 1916. Carried.

Motion No. 37. Approval of Tentative Program. Carried.

Motion No. 38. Election of Members Nos. 73–100 inclusive. Carried.

Motion No. 39. Acceptance of resignation of C. F. Nixon as a member of the Committee on Recipe Book and election of W. H. Glover as his successor. Carried.

Motion No. 40. Appropriation of one hundred dollars to pay the travelling expenses of Editor Eberle in coming from Dallas, Tex., to Columbus, O., in December, 1915, and then to Philadelphia office of the JOURNAL. Carried.

Motion No. 41. Election of Members, Nos. 101–122 inclusive. Carried.

Motion No. 42. Petition to form the Montana Branch, A. Ph. A. Carried.

Motion No. 43. Additional appropriation of $143.98 for Printing, Postage and Stationery for 1915. Carried.

Motion No. 44. Approval of program for 1916 Annual Meeting as finally revised. Carried.

Motion No. 45. Election of Members, applications Nos. 123–155 inclusive. Carried.

Motion No. 46. Petition to form Indianapolis Branch, A. Ph. A. Carried.

Motion No. 47. Election of Members, Nos. 156–185 inclusive. Carried.

Motion No. 48. Election of Members, Nos. 186–201 inclusive. Carried.

Motion No. 49. Election of Members, Nos. 202–249 inclusive. Carried.

Motion No. 50. Petition to form Cuban Branch A. Ph. A. Carried.

Motion No. 51. Invitation to Dr. S. Solis Cohen to address Atlantic City Meeting of A. Ph. A. Carried.

Motion No. 52. Additional appropriation of $100 for Item No. 4 Miscellaneous, 1916 Budget. Carried.

Motion No. 53. Election of Members, Nos. 250–292 inclusive. Carried.

Motion No. 54. Grant of permission to use N. F. IV text in "The Practice of Pharmacy," published by the J. B. Lippincott Company. Carried.

Motion No. 55. Election of Members, Nos. 293–314, inclusive. Carried.

Motion No. 56. Election of Members, Nos. 315–338, inclusive. Carried.

Motion No. 57. Election of Members, Nos. 339–369, inclusive. Carried.

Motion No. 58. Election of Members, Nos. 370–397, inclusive. Carried.

The following letter was presented to the Council by General Secretary Day:

MR. WM. B. DAY, LOUISVILLE, KY., July 29, 1916.
General Secretary, Am. Pharm. Association.

DEAR SIR:

I am in receipt to-day of an interleaved copy of the National Formulary IV, the completion of which work has become possible by the assistance of Vice-Chairman Scoville (to whom I tender grateful thanks), so as to appear simultaneously with the United States Pharmacopœia IX, 1916.

Much to my regret (as I have intimated in previous correspondence) this ends our official relations—but to prevent any misunderstanding I herewith formally tender my resignation as Chairman, to take effect at once.

It may be—and doubtless there will be—some corrections of the present text necessary at the Atlantic City Conference, at which I hope to be present, and this paves the way for a continuance of our friendly relation which, I feel confident, is mutual. Cordially yours,

C. LEWIS DIEHL.

W. B. Day moved, seconded by Otto F. Claus, that the resignation of C. Lewis Diehl as Chairman of the Committee on National Formulary be accepted and that the sincere thanks of the Association be tendered to Professor Diehl in appreciation of his many years of arduous and valuable labor on behalf of the National Formulary.

The motion was unanimously carried by a rising vote.

Adjourned until Tuesday evening, September 5, 1916, at 7.30 P.M.

J. W. ENGLAND, *Secretary.*

FOURTH SESSION, 1915–1916.

The fourth session of the Council of the American Pharmaceutical Association for 1915–1916 was held at the Hotel Chalfonte, Atlantic City, on Tuesday, September 5, 1916, at 8 P.M., Chairman E. G. Eberle presiding.

Present: Messrs. Apple, Arny, Beringer, Claus, Day, Eberle, Eldred, England, Freericks, Godding, Hilton, Hynson, Koch, Mayo, Ruddiman, Scoville, Stewart, Weinstein, Whelpley, and Wilbert.

The minutes of the third session were read and on motion approved.

Applications for membership, Nos. 423 to 438, inclusive, were elected, the list being as follows:

No. 423. Frederick Schaefer, 190 Nassau Ave., Brooklyn, N. Y., rec. by Aug. Driscoll and Otto Raubenheimer.
No. 424. O. J. Nance, Jackson, Tenn., rec. by J. O. Burge and W. B. Day.
No. 425. D. O. Wolff, 278 Dartmouth St., Boston, Mass., rec. by Zada M. Cooper and J. G. Godding.
No. 426. James A. Beve, 489 Congress St., Portland, Me., rec. by M. L. Porter and A. M. Meserve.
No. 427. Fred C. Johnson, Princeton, Me., rec. by M. L. Porter and Charles H. Davis.
No. 428. Harry E. Ring, Yarmouthville, Me., rec. by M. L. Porter and Charles H. Davis.
No. 429. Emile A. Fortim, M.D., Biddleford, Me., rec. by M. L. Porter and Charles H. Davis.
No. 430. Samuel J. Foster, Oakland, Me., rec. by M. L. Porter and Charles H. Davis.
No. 431. E. V. Norton Soule, 7 Chapel St., Augusta, Me., rec. by M. L. Porter and Charles H. Davis.
No. 432. Lewis W. Rowe, 169 Vancouver Ave., Detroit, Mich., rec. by W. L. Scoville and Edward A. Sayre.
No. 433. Samuel A. Mandelstein, South Fork, Pa., rec. by John H. Wurdach and J. A. Koch.
No. 434. Edward Clarence Reef, 3013 East St., Pittsburgh, Pa., rec. by John H. Wurdach and J. A. Koch.
No. 435. Adolph M. Berkovitz, 316 Helen St., McKee's Rock, Pa., rec. by Louis Saalbach and J. A. Koch.
No. 436. Bernando F. Rodriquez, Trinidad, Al. No. 45, Santiago de Cuba, Oriente, rec. by Louis Saalbach and J. A. Koch.
No. 437. Mrs. Muriel B. Holman, corner 4th St. and 6th Ave., Parnassus, Pa., rec. by A. F. Judd and J. A. Koch.
No. 438. Isadore Bluestone, 14 Reed St., Pittsburgh, Pa., rec. by J. A. Koch and A. F. Judd.

General Secretary Day called attention to the fact that 438 applications for membership had been received to date which was the largest number of accessions in any one year in the history of the Association, so far as he knew; the number at the final meeting of the Association at the Detroit meeting in 1914 was 433, which was the record-number previously.

The Report of the Committee on Publications was presented and accepted as follows:

To the Members of the Council:

GENTLEMEN:

The Committee on Publication submit the following report:

New Office of the Journal.—At the San Francisco (1915) meeting of the Association, the selection of the future office of the JOURNAL was referred to the Editor and Committee on Publication with power to act.

The Committee on Publication considered the subject from every angle—cost of printing the JOURNAL, service of printer, proximity to advertising centers, etc.—obtaining bids from St. Louis, Chicago, Cincinnati, Columbus, Easton and Philadelphia and unanimously awarded the contract for printing the JOURNAL to the J. B. Lippincott Company of Philadelphia, on November 16, 1915, beginning January 1, 1916, as the lowest and best bidder, and selected Philadelphia as the home office of the JOURNAL.

The Philadelphia Drug Exchange tendered the American Pharmaceutical Association the use of its splendid rooms and facilities in the Philadelphia Bourse Building, free of charge, for the office of the JOURNAL, which offer was accepted; and the thanks of the Association are due this body for its courtesy.

Reading Pages of the Journal.—The reading pages of the JOURNAL for 1915 numbered 1532 and for 1914, 1758, a decrease of 226; in 1913 the number was 1600. In accordance with the action of 1915 that the number of pages per month be reduced to not more than 128 per month where it can be done without detriment, we have made the maximum number of pages for 1916, 128 per issue.

Expenditures for the Journal.—In 1915 the JOURNAL cost was $6192.73 and included the following: (*a*) Publication; (*b*) clerical; (*c*) printing, postage and stationery; (*d*) freight, drayage and miscellaneous. Prior to 1915 such costs (excepting *a*) were charged against general items of the budget; beginning with 1915, however, separate accounts have been kept.

In 1914 the JOURNAL cost was reported (J. A. PH. A., 1915, 894) to be $5863.32, but this amount did not include the cost other than publication, as above referred to. Hence, comparisons of expenditures for 1915 with 1914 cannot be made.

The JOURNAL cost of 1915 ($6192.73) added to the Editor's salaries ($3270.86), charged against the General Salary Account, totaled $9463.59.

From the expenditures of the first seven months of 1916, Editor Eberle estimates that the expenditures for the year 1916 for publication, etc., will be about $5600, which with the Editor's salary ($3500) will equal $9100, or about $400 less than in 1915.

Receipts of the Journal.—The receipts of the JOURNAL in 1915 from advertisements were $3467.45, and from subscriptions, $152.88; a total of $3620.33.

In 1914 the receipts from advertisements were $3564.03 and from subscriptions, $300.84; a total of $3864.87, a decrease in 1915 over 1914 of $244.54.

Editor Eberle has received from advertisements and subscriptions for the first seven months of 1916, $3437.11, which indicates $5892.24 for the year; he conservatively estimates that the annual receipts will be fully $5600, which will be an increase of $2000 for 1916 over 1915.

Net Cost of the Journal.— In 1915 the expenditures for the JOURNAL (excluding salaries) were $6192.73, and the receipts, $3620.33; a net cost of $2572.40.

If the receipts for the JOURNAL for the twelve months of 1916 total $5600, and the expenditures total $5600, as we fully expect, this means that *the 1916 Journal will be published at little or no cost to the Association except for editorial salary.*

This highly gratifying result is due to decreased printing cost and increased advertising receipts.

In 1915 the printing bills totaled $5214.64, or $434.53 per issue; in 1916 (7 months) these bills totaled $2489.55, or $355.65 per issue, a saving practically of $80 per month on printing.

The total cost of the JOURNAL, including the Editor's salary in 1916, will not be more than $4000, which is $3000 a year less than the average yearly cost of the Proceedings for 1908, for 1909 and for 1910, which cost did not include the General Secretary's salary or even a part of it.

But the increased cost of paper stock to-day is fully 100 percent more than last year, and the other printing costs have advanced all along the line. Hence, after our contract for printing the JOURNAL for 1916 is concluded, we shall have to pay more for printing the JOURNAL.

Year-Book for 1914 (*Volume III*).—The contract for printing the *Year-Book* for 1914 (Volume III) was awarded to the Stoneman Press Co., of Columbus, O., the lowest bidder, on February 7, 1916. The complete manuscript was sent this company on February 10, 1916. Six months elapsed and the book is just about being distributed, the Stoneman Press Company writing under date of August 2, 1916: "Everything is now in the hands of the book binders, and we hope to have finished books by August 15."

Such delay is inexcusable, and is wholly the fault of the Stoneman Press Co., because "At no time was any proof held for forty-eight hours and in almost every case the proof was sent back the day received." (Prof. Koch.)

The complaint of excessively slow service by the Stoneman Press Co. is not new. It was made the subject of a special communication by Reporter Diehl at the Detroit (1914) meeting of the Association (J. A. PH. A., 1914), who reported data showing that it had taken nearly eight months for the Stoneman Press Co. to print the *Year-Book* of 1912 (Vol. I). The company, however, was given another chance to bid this year, and being the lowest bidder was awarded the contract.

In their defense this year the Stoneman Press Co. (May 18, 1916) claim that they had not been able to procure the paper stock until May 16, and asked to be allowed to charge the Association $168 additional for paper.

The request was refused and the printing company held to their contract.

Such an experience indicates that the lowest bidder is not always the best bidder and that service is equally as important as price.

The bills for the 1914 *Year-Book* (Volume III) have not yet been received. The cost of the previous volume (Volume II) was, including all bills, $3000.95, which, with the salary of the Reporter on the Progress of Pharmacy, $1050 ($900 + $150), totaled $4050.95.

The Future of the Year-Book.—There is a division of opinion among the members of the Association regarding the future issuance of the *Year-Book.* When the subject of a monthly JOURNAL was discussed at the Richmond meeting in 1910, it was informally understood that the Report on the Progress of Pharmacy was to be published hereafter, not as an annual volume, but in installments in the JOURNAL, but, so far, no specific action has been taken by the Council. The subject recurs each year, and it is important that some official decision be made.

There are two sides to the question. The research workers of the Association, who want up-to-date, world-wide abstracts of pharmaceutical publications as soon as possible after original publication and not one or more years afterwards, are in favor of installments in the JOURNAL. On the other hand, the members who are not research workers wish the annual volume; also, it is claimed that the Association is morally bound to furnish the *Year-Book* of 1915 and 1916 to those members who have joined the Association during these years with the promise or expectation that they would receive the *Year-Book.*

The *Year-Books* cost the Association about $3000 yearly, not including the salary of the Reporter on the Progress of Pharmacy, which has been $1200, but is now $600, and, in view of the advance in printing costs, the book will cost more in the future, temporarily at least.

The question is not only one of finance, but also one of service. "Which will be to the best interests of the members of the Association?" (1) To publish the *Year-Book* as an annual volume, or (2) to publish it in installments in the monthly JOURNAL? The research workers could be served by having a department of brief "Abstracts of Pharmaceutical Literature" in the JOURNAL, although this would duplicate, in a measure, the matter of the *Year-Book.*

The Committee on Publication recommends that in view of the importance of this question, affecting as it does every member of the Association, a statement of the facts of the case be mailed to the membership next November with the official ballot and that each member be requested to express his or her preference by vote.

Printing N. F. IV.—At the Detroit (1914) meeting of the Association, the award of the contract for printing the National Formulary, Fourth Edition, to the J. B. Lippincott Company of Philadelphia was approved, and, by reason of war conditions, the Committee on Publication was directed to make the necessary contract as soon as possible, which was done.

Time has shown the wisdom of this decision in view of the advanced printing costs and the characteristic typographic excellence of the book printed by the J. B. Lippincott Company; the service of this company has been most satisfactory.

The J. B. Lippincott Company has protected the Association in the issuance of the N. F. IV by buying a large stock of paper for it, so as to insure a large edition of the book without increased cost to the Association.

The first run of the book was 10,000 copies, of which 5200 were bound and ready for distribution by July 25, 1916; the remaining 4800 were held for binding until August 19, 1916, and then bound.

The orders for the book to August 29, 1916, total 10,418.

Complimentary Copies of the N. F. IV.—In accordance with precedent,[1] and by reason of its responsibility for the proper publication and distribution of the National Formulary, the Committee on Publication has distributed a limited number of copies of the N. F. IV with the compliments of the American Pharmaceutical Association, which action we trust will meet with your approval. This list embraces unbound copies to a restricted list of pharmaceutical and medical journals, and bound copies to the members of the several committees having the work in charge and a few individuals who rendered special services in the work on the book. The list of free copies so far distributed is appended.

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[1] List of societies, libraries, journals and individuals to whom complimentary copies of the Proceedings of the Association (including the National Formulary, First Edition) were forwarded by Committee on Publication. (*Proc. A. Ph. A.*, 1888, 619.)

Validity of Copyright of National Formulary.—There seems to be confusion in the minds of some as to the nature and validity of the copyright of the National Formulary. Without discussing the subject at this time, it may be said that the Committee on Publication has given it very careful consideration and is thoroughly convinced that Dr. James H. Beal is right in his opinion that "the N. F. copyright is valid and that the Association is within its legal rights in providing the manner in which the text of the volume may be reprinted"; the Committee is prepared to defend these claims if attacked in a court of competent jurisdiction and protect the property of the Association.

Conditions of the Use of Text of N. F.—The conditions for the use of text of the National Formulary by the Council are eminently fair and equitable, both to authors and to the Association, a distinction being made between the partial use of the text that cannot be used as a substitute for the National Formulary, and the substantial or complete reproduction that can be used as a substitute. For the former there is no charge; for the latter there is a charge governed by the conditions of each case.

When applications are made for the use of the text of the National Formulary, and granted, the following acknowledgment is required to be made on the reverse of the title page of the book: "Permission to use for comment (parts of) the text of the National Formulary, Fourth Edition, in this volume has been granted by the Committee on Publication by authority of the Council of the American Pharmaceutical Association."

To date, the following applications for the *partial* use of the N. F. IV have been made and granted:

(1) Manual of U. S. Pharmacopœia and National Formulary. By the American Medical Association.

(2) "A Digest of the Changes and Requirements included in the Pharmacopœia of the United States, Ninth Decennial Revision, and in the National Formulary, Fourth Edition, with reference to the Titles Not Continued from the Preceding Editions." By Hygienic Laboratory, U. S. Public Health Service, Treasury Department.

(3) National Standard Dispensatory, New Edition. Published by Lea and Febiger, Philadelphia.

(4) "Physicians' Visiting List," "Gould's Pocket Medical Dictionary," and "Gould and Pyle's Medical Cyclopædia." Published by P. Blakiston's Son & Co., Philadelphia.

(5) "Principles of Pharmacy." By H. V. Arny.

(6) Booklet of New York State Pharmaceutical Association. By J. Leon Lascoff, Chairman of the Committee on U. S. P. and N. F. Propaganda.

The following application has been received for the *complete* use of the N. F. IV text, recommended by the Committee on Publication to the Council, and granted by vote of the Council (C. L. No. 26):

"The Practice of Pharmacy," J. P. Remington. Published by the J. B. Lippincott Company, Philadelphia.

The offer of the J. B. Lippincott Company was, in brief, as follows:

To pay one thousand dollars for and in consideration of permission to use the N. F. IV text in whole or in part in "The Practice of Pharmacy," printing upon the copyright page that permission has been granted by the American Pharmaceutical Association in the usual form, and that at least ninety days shall elapse after the issue of the N. F. IV before "The Practice of Pharmacy" is printed.

Each application for the complete use of the N. F. IV text by authors must be judged individually, because the conditions are different in each case.

When the Lippincott application was made, the Committee on Publication gave the subject very careful consideration and decided that the offer was a fair and reasonable one and recommended its acceptance by the Council.

The Board of Trustees of the U. S. P. C. received $1750 for the use of the U. S. P. IX text by the same publishers, and it can hardly be claimed that the royalty for the use of the N. F. IV text should be as great as that asked for the use of the U. S. P. IX text.

Digest of N. F. IV.—It is of interest to state that the Hygienic Laboratory, U. S. Public Health Service, Treasury Department, is now compiling "A Digest of the Changes and Requirements included in the Pharmacopœia of the United States, Ninth Decennial Revision, and in the National Formulary, Fourth Edition, with reference to the Titles Not Continued from the Preceding Editions.

The digest will be a summary of some of the comments published in the several volumes of digests of comments published on the Pharmacopœia and National Formulary.

The use of the text of the National Formulary in the manner proposed will result in wide-spread publicity to the Pharmacopœia and National Formulary, and will be of much practical value to pharmacists and physicians in enabling them to grasp the scope and significance of the changes and requirements made in the official standards.

Agency and Sale of N. F. IV.—At the Detroit (1914) meeting of the Association the contract for the Agency and Sale of the N. F. IV was directed to be made with the Midland Publishing Co., of Columbus, Ohio, by the Committee on Publication, which was done.

The contract made with this company, of which Mr. Geo. B. Kauffman is president, is a very advantageous one to the Association, and the service it has rendered has been entirely satisfactory.

Sub-Agents of the N. F. IV.—The Sub-Agents for the N. F. IV selected by the Sales Agents are:

New York—The Baker and Taylor Co., 354 Fourth Avenue.
Chicago—The Chicago Medical Book Co., Congress and Honore Sts.
St. Louis—The L. S. Mathews Co., 3563 Olive St.
San Francisco—The Pacific Drug Review, 576 Museum St. and Portland, Oregon.

Net Receipts on the N. F. IV.—It is impossible, at present, to state what the net receipts from the sale of the National Formulary, Fourth Edition, will be. The bills are not all in. But it seems reasonable to believe that the net receipts for the next ten years of the fourth edition of the National Formulary will be fully as large as, if not larger than, the net receipts have been for the past ten years of the third edition.

Disposal of Receipts from National Formulary.—The following rule was adopted at the San Francisco meeting last year:

Rule 14. Disposal of Receipts from National Formulary. The Treasurer shall keep a separate and accurate account of all receipts and disbursements for the National Formulary. Any balance of receipts in excess of disbursements remaining to the credit of this account at the end of any fiscal year shall be credited to the Endowment Fund and become a part thereof.

But, it seems to your Committee on Publication, that we should go further than this. We should provide not only for the proper segregation of the profits of the National Formulary, but also for the proper use of such funds for further National Formulary Revision and for research work for the benefit of the book.

Furthermore, in our judgment, the American Pharmaceutical Association should change its method of revising the National Formulary. The best talent available should be secured and the work should not be done without proper recognition and a reasonable compensation.

The work of the present revision has been carried on by a comparatively few, who have been compelled to assume the bulk of the experimentation and work, and at considerable loss of time and material. The appropriations to the Committee have been sufficient to pay for the materials used in experimentation, but for practically nothing more. It is felt that this is not the proper way to secure the best work.

In our judgment, a chairman should be selected who would continuously devote much of his time and attention to the improvement of the book, and the suggestions and criticisms offered should be given consideration by sub-committees in the interim between the revisions and not at the last moment be accidentally recalled or entirely overlooked. To secure such a chairman who will devote the time and attention necessary is one of the questions that merits the attention of the Council, as well as the proper means of carrying on the work from a financial viewpoint.

We recommend that Rule 14 be changed to read:

Rule 14. Disposal of Receipts from National Formulary. The Treasurer shall keep a separate and accurate account of all receipts and disbursements for the National Formulary. Any balance of receipts in excess of disbursements remaining to the credit of this account at the end of any fiscal year shall be deposited in a special fund to be known as the National Formulary Revision and Research Fund. This fund shall be available for paying the expenses of the continuous revision of the National Formulary and the research work contributory thereto and for such other purposes as the Council may elect.

We recommend that the subject of honoraria for members of the Committee on National Formulary in recognition of services rendered be considered by the Council, but have no specific recommendations.

The Status of the Committee on National Formulary.—In 1908 the Council formally elected fifteen members as the Committee on National Formulary for the fourth edition to act for the full period of revision.

It seems to us that the importance of the work of revising a national legal standard requires that the committee having such a work in charge should be made as permanent as possible, and not be abolished at the conclusion of each revision, as has been the rule previously.

An Appreciation.—In conclusion, your Committee on Publication wishes to express its deep appreciation of the sacrifices and services of Eugene G. Eberle as Editor of the JOURNAL.

Breaking the home-ties of a score and more of years in a far distant Western state and making serious sacrifices, financial and otherwise, he favored bringing the JOURNAL office to Philadelphia, because he believed that it would redound to the best interests of the American Pharmaceutical Association, utterly ignoring any consideration of self. Such an altruistic spirit demands the warmest appreciation of every member of the Association.

Furthermore, he has rendered exceedingly able services as Editor. Under his editorship the JOURNAL contains most interesting and valuable matter—matter that appeals to every one of the diversified interests of our organization; the JOURNAL is doing more to-day to draw the members of the Association closer together and to promote its growth and development than probably any other single factor.

We ask the members of the Association, individually and collectively, to express their appreciation of Prof. Eberle's sacrifices and services to him, and to co-operate with him, wherever possible, in his work for the JOURNAL.

Respectfully submitted,

J. W. ENGLAND, *Chairman.*

LIST OF COMPLIMENTARY COPIES OF N. F. IV TO DATE.

1. JOURNAL copies (unbound):

Pharmaceutical Journals (20):

- American Druggist and Pharmaceutical Record, 62 West Broadway, New York, N. Y.
- American Journal of Pharmacy, 145 N. Tenth St., Phila., Pa.
- Deutsch-Amerikanische Apotheker Zeitung, 104 John St., New York, N. Y.
- Merck's Report, 45 Park Place, New York, N. Y.
- Meyer Bros. Druggist, 222 S. Broadway, St. Louis, Mo.
- N. A. R. D. Journal, 122 S. Michigan Blvd., Chicago, Ill.
- Oil, Paint and Drug Reporter, 100 William St., New York, N. Y.
- Practical Druggist and Pharmaceutical Review of Reviews, 108 Fulton St., New York, N. Y.
- The Apothecary, 145 High St., Boston, Mass.
- The Bulletin of Pharmacy, Box 484, Detroit, Mich.
- The Druggists' Circular, 100 William St., New York, N. Y.
- The Journal of the American Pharmaceutical Association, Philadelphia Drug Exchange, Bourse Bldg., Phila., Pa.
- The Midland Druggist and Pharmaceutical Review, Columbus, Ohio.
- The National Druggist, 914 Century Bldg., St. Louis, Mo.
- The Northwestern Druggist, Lumber Exchange, Minneapolis, Minn.

The Pacific Pharmacist, 232 Balbao Bldg., San Francisco, Cal.
The Pharmaceutical Era, 82 Fulton St., New York, N. Y.
The Southern Pharmaceutical Journal, Dallas, Texas.
The Western Druggist, 536 South Dearborn St., Chicago, Ill.
Pacific Drug Review, 616 Corbett Bldg., Portland, Ore.

Medicals Journals (16) :

American Journal of Clinical Medicine, 4753 Ravenswood Ave., Chicago, Ill.
American Journal of the Medical Sciences, 706 Sansom St., Phila., Pa.
American Medicine, 18 E. 41st St., New York, N. Y.
Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.
California State Journal of Medicine, Butler Bldg., San Francisco, Cal.
Journal of American Medical Association, 535 N. Dearborn St., Chicago, Ill.
Journal of the Indiana State Medical Association, Fort Wayne, Ind.
Medical Record, 51 5th Ave., New York, N. Y. (Bound.)
New York Medical Journal, 66 West Broadway, New York, N. Y.
New York State Journal of Medicine, 17 W. 43rd St., New York, N. Y.
Ohio State Medical Journal, Columbus, Ohio.
Penna. State Medical Journal, Athens, Pa.
Tennessee State Medical Association Journal, First National Bank Bldg., Nashville, Tenn.
Texas State Journal of Medicine, Western National Bank Bldg., Fort Worth, Texas.
Therapeutic Gazette, Detroit, Mich.
Journal of Laboratory and Clincal Medicine, St. Louis, Mo.

2. Committee Copies (bound) (34) :

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E. H. Gano, 95 Fulton St., New York, N. Y.
L. D. Havenhill, 1539 Vermont St., Lawrence, Kansas.
J. A. Koch, Bluff and Pride Sts., Pittsburgh, Pa.
Henry Kraemer, 145 N. Tenth St., Philadelphia, Pa.
B. L. Murray, care of Merck and Co., Rahway, N. J.
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Harry B. Mason, P. O. Box 484, Detroit, Mich.
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Otto Raubenheimer, 1341 Fulton St., Brooklyn, N. Y.
M. I. Wilbert, 621 35th St., N. W., Washington, D. C.
C. Lewis Diehl, 932 Cherokee Road, Louisville, Ky.
Wilber J. Scoville, 81 Melbourne Ave., Detroit, Mich.
H. V. Arny, 115 W. 68th St., New York, N. Y.
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Clyde M. Snow, 701 S. Wood St., Chicago, Ill.

A. B. Stevens, Chemical Laboratory, Ann Arbor, Mich.
Adam Wirth, 5902 Hurst, Corner Elenore St., New Orleans, La.
George M. Beringer, Fifth and Federal Sts., Camden, N. J.

3. Individual Copies (bound) (8):
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M. I. Wilbert, Public Health Service, Washington, D. C. (Unbound.)

The recommendation that a vote by mail of the membership to be taken to secure a consensus of opinion as to the manner of issuing the *Year-Book* in the future was, on motion of Joseph Weinstein, seconded by H. V. Arny, adopted.

The recommendation on Rule 14 (Disposal of the Receipts from the National Formulary) was discussed, and action deferred until a future meeting, as was also the recommendation to make the Committee on National Formulary a continuous committee, and also, the suggestion that the subject of honoraria to members of the Committee on National Formulary.

On motion of Caswell A. Mayo, seconded by H. V. Arny, the following resolution was passed:

Whereas, Eugene G. Eberle accepted the position of Editor of the JOURNAL of the American Pharmaceutical Association at great personal and financial sacrifice and

Whereas, his services as Editor of the JOURNAL of the Association have been eminently satisfactory and have proven most helpful to the Association, Therefore be it

RESOLVED, that the Council of the American Pharmaceutical Association hereby expresses its appreciation of the services rendered by Eugene G. Eberle and its confidence in him.

The Report of the Editor was presented as follows, and accepted:
Members of the Council:

GENTLEMEN:

The Editor of the JOURNAL of this Association knew that his acceptance of the office to which you elected him necessitated a change of residence. Rather than take the responsibility of selecting the location for the JOURNAL office, he asked the Council to decide, with the result that the decision was left to the Committee on Publication, and they selected Philadelphia. Complying then with his promise to make his home in the city that would be chosen, he cut the ties and business relations that had been formed during a period of more than thirty years.

The rooms of the Philadelphia Drug Exchange in the Bourse Building of Philadelphia were offered for the office of the JOURNAL. The contract for printing the JOURNAL was awarded to J. B. Lippincott Company, and the Editor takes this opportunity in saying that the service of this company has been excellent and that the firm endeavors in every possible way to facilitate the work. They have provided storage room for the back numbers of the JOURNAL and also the cuts that are used from month to month in the publication. Everyone who must buy paper and printers' ink is fully aware of the increased cost of such material, so the Association was fortunate in closing a contract on very reasonable terms.

In moving to Philadelphia quite a little expense was involved for freight and express on JOURNALS and cuts. At the time of removal the exchanges on hand were shipped to the Reporter on the Progress of Pharmacy, Professor Julius A. Koch. The freight and express cost in making the move from Columbus amounted to $63.87. In addition, thereto, on account of the change, new stencils for mailing were required, costing $27.55, and the advertisements had to be reset, involving an expense of $37.13. The two latter items are included in the cost of printing, but are mentioned so that you may know the full amount that was incurred by the removal. These also are included in the miscellaneous expenses of the JOURNAL and present the reason for the slight increase in that account.

The Editor does not draw warrants for expenses, but they are submitted at once to General Secretary Day, who in turn has them approved by the Committee on Finance, and the Editor is then reimbursed. Likewise all remittances are at once transferred to Treasurer Dr. H. M. Whelpley. This method is entirely satisfactory to the Editor.

The printers' bill for the last six months of last year was $2543.41, and all other expenses $455.86. It should be stated that the latter amount would have been larger, and is slightly larger at present, because only part of the actual clerical expense was charged while the Editor was in Dallas. The total expense, not including Editor's salary, was $2999.27. The expense of the JOURNAL for the first six months of this year was $2877.38. This includes the expenses already referred to and necessitated by the removal from Columbus to Philadelphia, with still a favorable difference of $121.89. The receipts for the last six months of last year were $1529.97, and of the first six months of this year $2770.48, a favorable difference of $1240.51 remains. It should be stated that the receipts for December, 1915, were small and those of January, 1916, large, because the latter included some of the money that should have been collected in December, 1915.

The JOURNAL receipts for 1914 were $3539.39, those of 1915, $3620.33. The receipts for this year (1916) up to September 1, are $3682.33, therefore now slightly exceeding the receipts of all of last year. Thus, if during the next four months, the proportion of receipts is maintained, we would this year have receipts amounting to $5323.49, or a gain of $1579.41 over last year and somewhat more than that over 1914. This is of course counting in advance, but it is a reasonable expectancy and should in fact be more.

The number of advertising pages in the March issue of 1915 was 10, and 16 in the August number of 1916, a gain of six pages. While the Editor had hoped for a larger increase, this shows progress, and we should within a few years have nearly double this number of advertising pages. Increase in advertising pages comes slow and must be sustained by the pulling-power of the publication. A word right at this time may be opportune. While it is not the intention to make the JOURNAL a money-making proposition, the income should pay for its publication. The members can help by encouraging the advertisers. The latter of right expect to have satisfactory evidence of their advertising investment. The chemical and pharmaceutical manufacturers know that their messages in the JOURNAL are read and that they have returns. There are, however, sundry lines, and these dealers expect direct results. We may know that advertising in the JOURNAL brings results, but advertisers want to be convinced, and the encouragement by the members will therefore have great value in making an advertiser "stick" and induce others to avail themselves of the JOURNAL as an advertising medium. Let me enlist your support for the advantage of the Association.

The Report of the Treasurer, Secretary and Committee on Publication present the business statement of the JOURNAL in detail. While the Editor's deep concern is in preparing the JOURNAL, he is not unmindful of the duty he also assumed of looking after the advertising, and he has given this important matter study and time.

The aim in preparing copy for the JOURNAL is to have something each month that will interest every reader. The Editor is grateful for many letters of appreciation, and always welcomes advice and suggestions; his ambition is to serve the members to the best of his ability. He hopes that his work has proven satisfactory and that no member regrets his election to the honorable and important position he holds.

In closing the Editor desires to express his appreciation of the reception in the new home of the JOURNAL; not only did the members, the drug trade generally, give a cordial welcome, but the medical fraternity, schools and business organizations joined heartily.

Offering you my best service and expressing thanks for your consideration,

Respectfully and fraternally,

EUGENE G. EBERLE, *Editor.*

The Commission on Proprietary Medicines presented a report through Chairman Dr. James H. Beal, together with a supplementary report, which will be published separately.

On motion of H. P. Hynson, seconded by Dr. F. E. Stewart, the report was referred to the Section on Education and Legislation for discussion and returnal to the Council; action by the Council being deferred.

On motion of F. H. Freericks, seconded by H. P. Hynson, the supplementary report was approved by the Council.

Adjourned until Wednesday, September 6, 1916, at 7.30 P.M.

J. W. ENGLAND, *Secretary.*

REPORT OF THE COMMITTEE ON THE PHARMACEUTICAL SYLLABUS FOR THE YEAR ENDED AUGUST 31, 1916.

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The Syllabus Committee of your organization respectfully submits the following report for the past year.

The current edition of the *Pharmaceutical Syllabus* was issued during 1914, and 775 copies have been sold, mostly to members of boards of pharmacy and of faculties of pharmacy schools.

The *Syllabus* has been subjected to searching examination and criticism and, while various defects in it have been pointed out, the consensus of opinion is that the second edition is a great improvement over the first one, and that the book is exceedingly useful to colleges of pharmacy in developing their curriculums, and to boards of pharmacy in formulating their examinations.

Plans are being made for a third edition of the *Syllabus,* which is expected to be issued in 1919, to become effective in 1920. During this formulative period of the work it has been necessary to revise it every five years, but it is hoped that eventually revision every ten years will be sufficient.

The finances of the Committee are in a satisfactory condition. As no officer nor member receives any compensation for his services, the only expenses have been for the making of the book, miscellaneous printing, postage, and a few miscellaneous expenditures. The receipts have been from the appropriations of twenty-five dollars annually from the three parent bodies, and from the sale of the book. At the time this report is written the liabilities are fifty dollars, which are much more than balanced by the value of the 225 copies of the book on hand, and of the electrotypes for printing it.

The Committee requests and recommends your organization to continue the annual appropriation of twenty-five dollars towards the necessary expenses of its work.

Signed, WILLIS G. GREGORY,
Chairman.

THEODORE J. BRADLEY,
Secretary-Treasurer.

WOMEN PHARMACISTS AT THE ATLANTIC CITY MEETING OF THE A. PH. A.

Seated, Miss Helen Ritz Burns, Lewiston, Pa.; Miss M. Grace Truby, Pittsburg, Pa.; Miss Mabel Barnhill, Bethel, N. C.; Miss Zada M. Cooper Iowa City, Ia.; Miss E. Grace Lotz, Baltimore, Md.; Miss M. C. Starr, Philadelphia; Miss Sylvia C. Alacan, Havana, Cuba.
Standing, Miss Jamella Fox, Philadelphia, Pa.; Mrs. J. C. Peacock, Philadelphia; Miss Susannah G. Haydock, Philadelphia; Mrs. St. C. R. Gay, New York; Miss B. Olive Cole, Baltimore; Miss A. M. Patterson, Baltimore; Mrs. C. H. LaWall, Philadelphia: Miss Antonio M. Garrigo, Havana, Cuba, Mrs. Hampton Ray Kenaston, Bonesteel, S. Dak.—*Courtesy of American Druggist.*

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, J. H. BEAL, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

PROF. C. LEWIS DIEHL AND FAMILY IN A TRAIN WRECK.

Prof. C. Lewis Diehl and family were on the Pennsylvania train wrecked at King's Mills, September 30. A general account of this unfortunate accident will, doubtless, have been noticed in the daily papers, but possibly the members are not advised of the fact that Professor and Mrs. Diehl were on this train, and also Prof. J. U. Lloyd. We understand that Professor Lloyd was not injured and that he was able to assist in giving first aid to the injured. Professor Diehl, who is now in his seventy-seventh year, was knocked about and received bruises. In his letter, Professor Diehl says that the disaster was one of the most appalling that he had ever witnessed or experienced. For some time after the fall and shock of it he was unable to move his right leg freely. The muscles seemed cramped, due very likely to the straining of some of the ligaments. Mrs. Diehl was hurt only very slightly and both were able to get out of the car unassisted. Professor Diehl does not say whether he has fully recovered, but we are certain that all of the members of the Association sincerely hope so.

FROM COAST TO COAST

Seward W. Williams, of Chicago, prepared a booklet entitled "From Coast to Coast," commemorating the visit of the American Pharmaceutical Association to San Francisco last year, and brought the interesting story to bear on the recent convention in Atlantic City. While largely concerned with the San Francisco meeting and the trip, Mr. Williams did not forget that, in bringing these memories of last year to the attention of 5000 or more druggists, he might persuade some non-members to come to Atlantic City, and therefore inserted an A.Ph.A. Membership Application Blank for their convenience; he also gave them reasons why they should hold membership in the American Pharmaceutical Association, and told of the aims and purposes of the organization and its work. The other part of the message includes several appreciations, from Prof. Jos. P. Remington, John F. Patton and others; sketches and other contributions by Messrs. Alpers, Mayo, Day and Cousins, and an explanation of how the "Seaward" booklet had its inception. The subject of Dr. Wm. C. Alpers relates to "Meeting Old Friends," that of Editor C. A. Mayo speaks from "Sandy Hook to the Golden Gate," Prof. Wm. B. Day of "Comradeship," and Editor W. H. Cousins talks about everyone, including himself, while giving *some* of his impressions of the journey.

Really the thought of getting out the booklet was a happy one, the production fine and the spirit which actuated the purpose highly commendable and deserving of recognition.

The Chicago Veteran Druggists' Association expressed their appreciation in a letter signatured by all in attendance, at a recent Round Table gathering.

PAPER PULP POSSIBILITIES IN THE PHILIPPINES.

The growing scarcity of materials for the manufacture of paper is of sufficient interest to note sources of possible supply in the JOURNAL. *Commerce Reports* has recently reported on such sources and among these those of the Philippine Islands seem of particular interest. The information given is from a report of J. F. Boomer, Manila, under date of August 30. The most promising source is the bamboo, *Cana bojo,* which is easily propagated. With *Cana bojo* the soda process invariably yields from 43 to 45 percent of air-dry, unbleached soda pulp. Such pulp bleaches to a splendid white with from 12 to 15 percent of bleaching powder. The fiber is strong, of good felting capacity, and makes a more bulky sheet than wood pulp. The fiber possesses the requisite length, strength, and felting capacity to meet the paper makers' demands, and the quantity of resistant cellulose per unit weight of raw material is sufficient to warrant its extraction.

An area of 1000 hectares of bamboo would supply a pulp mill of 20 tons daily capacity for 3 years of 300 working days each, without taking into account the growth of the bamboo during this period. Working on a 3-year rotation basis, which is entirely feasible, such an area would supply a mill of this capacity indefinitely. Since an area of 2 kilometers' radius contains more than 1200 hectares, the question of transportation of the material to a given point, so far as the distance for hauling is concerned, is not a serious one.

The Philippine Bureau of Science has estimated the cost of manufacture of pulp from *Cana bojo,* dividing such cost into the items of (1) labor, (2) fuel, power, etc., (3) chemicals and supplies, (4) repairs, renewals, and depreciation, (5) taxes, insurance and interest. All of these items have been discussed in detail in the *Philippine Journal of Science.* The article quoted shows that $200,000, United States currency, should be sufficient to build, equip, and operate a soda pulp mill of 20 tons daily capacity. Such a plant, built in a modern manner and efficiently operated, will produce unbleached, air-dried bamboo fiber at a minimum cost of $21 per short ton f.o.b. Manila. If the excellent quality of *Cana bojo* soda pulp prepared under favorable conditions is considered a profitable trade with Japan, Australia, and the Pacific Coast of North America in direct competition, chemical wood pulp at ordinary quotations appears a reasonable expectation. One consideration of special importance is the possibility of obtaining the raw material in such quantity and at such a figure as to allow manufacture at a profit even under conditions of maximum cost.

IMPORTATION OF INFERIOR FOODSTUFFS INTO PANAMA.

To the Editor of the Journal of the American Pharmaceutical Association: I am enclosing herewith a translation of a report by me and published some time ago in *La Estrella de Panama,* which shows some of the conditions we have to contend against in the Republic of Panama.

To inform the readers of the Association, I deem it convenient to beg of you the publication of the said translation in the Journal of the American Pharmaceutical Association.

Thanking you in advance for this favor, and promising applications of some new members to be enrolled soon, from Panama,

I remain, dear friend,

Sincerely yours,

Bolivar Jurado.

"More than once have we given a word of warning to our countrymen in regard to the great need of prevention against the acceptance of imported adulterated foodstuffs for our daily use. Before the assembling of our Legislative Body and its last regular sessions, we pointed out our need of providing legal regulations on the important topic that we now discuss. We published, besides, in connection with this subject, a few articles in the *Revista de Instruccion Publica* (Educational Review) because we believe that the true teachers, those who read and are up to the standard, by their teaching on 'Prevention' would sow a seed of great transcendency for the future generations. We must admit also, that our governments have done nothing in the way of using their influence towards the betterment of those abnormal conditions that arise in a country where illegal commerce is carried on greatly against our individual safety.

"Owing to an alarming lack of value and to the poverty of foods most essential to human economy, imported to the Panama market, we consider it our duty to denounce before the public certain facts that would demand greater attention in countries where more care is taken in order to safeguard the interests of the people.

"One of our greatest mistakes consists in our lack of legal regulations to prevent the importation of spurious products into our country. Once these products have been imported, it would seem unjust to proceed (with the little energy allowed by the municipal laws in force here in Panama City) to the prosecution of merchants who are conducting their business honestly in the belief that they are buying a certain article when they are receiving instead a worthless product for their money.

"The time has come for us to let dishonest manufacturers know that in our land we can differentiate between the good and bad stuffs they send us. It is true that some of them place on their goods labels like the ones used on some milks, expressing their quality, by using the words 'skimmed milk,' written in a foreign language. The buyer is not aware of the fact that it can be translated into these words: 'milk from which the principal nutritive ingredient has been taken away.' In case the buyer may understand the language in which are written words like these: 'Prepared expressly for Export,' he probably is not aware of the fact that the real meaning may be 'Little care in the Preparation.' Anyone might think, on the contrary, that the label indicates special care taken, that the product may reach us in perfect condition. Let the public know once for all that articles thus marked may be classified among those that the law forbids to be sold under such label statements in other countries. Some labels—as that on a well-known brand of Swiss Condensed Milk, for instance—states that the product is pure and that 'nothing but water is taken from it.' On examination, some of the samples of that same milk show that they did not contain any appreciable amount of milk fat, and we do not believe, on the other hand, the product to be obtained from any special kind of cows that produce ready skimmed milk.

"The Municipality of Panama has done a good deal in the way of 'prevention' against such methods, but, for the general good of our country, there is a great deal more to be done.

"The legal regulations to which we refer—either local or national—must, of course, conform with the true spirit of justice corresponding to each and every case. For this reason we believe there should be some provision to the end of avoiding, by means of scientific supervision, the importation into our country of such articles as are making the little Republic of Panama the valve through which flows the great bulk of spurious food products *not salable at all in the civilized countries of the world.*

OBITUARY

GEORGE C. BARTELLS.

George C. Bartells, life member of the American Pharmaceutical Association and first vice-president in 1897–1898, died at St. Paul, Minnesota, September 10. Mr. Bartells had arrived on a visit to his son Charles W. Bartells, only two days before his death.. The deceased was a familiar figure at the meetings of the Illinois Pharmaceutical Association, of which he was treasurer from 1898 to 1912. Upon his refusal to accept re-election in 1912, the members of the Illinois Pharmaceutical Association elected him to honorary membership in recognition of their appreciation of his long and faithful service. Mr. Bartells was a civil war veteran, a man of fine qualities and successful as a pharmacist of the old school. For many years he was active in the American Pharmaceutical Association, and a regular attendant at the annual meetings. He joined the Association in 1881.

Mr. Wilhelm Bodemann, in writing relative to the deceased, says that he was born in the Province of Hannover, Germany, July 1, 1841. At the age of twelve years his family came to the United States and settled in Wheeling, West Virginia. In 1855 he came to Illinois, where he was apprenticed to Dr. H. A Rogers, of Quincy. He was a member of the Fiftieth Illinois Volunteers, and his experience in the drug store resulted in his appointment as nurse and dispenser. Since 1870 he was in business at Camp Point, Ill. Mr. Bartells was a three-fold veteran—a veteran of the Civil War; a veteran treasurer of the Illinois Pharmaceutical Association, and last, but not least, a member of the Chicago Veteran Druggists' Association. A lovable character—honest to the limit, fearless in his convictions, loyal as a friend, and one of God's noblemen, and that ranks above any degree of nobility of effete monarchies.

SOCIETIES AND COLLEGES

FALL MEETING OF THE AMERICAN CHEMICAL SOCIETY, DIVISION OF PHARMACEUTICAL CHEMISTRY.

The fifty-third meeting of The American Chemical Society, held in New York City from September 25 to 30, was a grand success. Chemists from all over the United States, including many pharmacists, were in attendance and took part in the scientific program. At the same time The Second National Exposition of Chemical Industries was held in the Grand Central Palace, occupying two floors and with over 200 exhibitors, including those of many pharmaceutical chemists. It is a credit to pharmacy that in the opening exercises of the Exposition a pharmacist, Dr. Thomas J. Keenan, formerly Associate Editor of *The American Druggist* and now editor of *Paper,* took an active part. He called attention to the close connection between chemistry and paper-making and the yellow tinge of the newspapers since the stoppage of aniline dyes from Germany, which were used to whiten the paper. He pointed out a promising development in the South, where the sulphite process is being used to turn yellow pine waste into brown wrapping paper, similar to the Swedish product.

DIVISION OF PHARMACEUTICAL CHEMISTRY.

The meeting of this section was held in the New York College of Pharmacy on Wednesday morning, September 27, with a good attendance; many pharmacists were present; the pharmaceutical journals were also well represented. Dr. John A. Long presided as chairman, and in the absence of Dr. George D. Beal, Dr. Lyman F. Kebler acted as secretary. The paper on *Aromatic Sulphuric Acid,* U.S.P., by Penniman, Randall, Miller and Enslow, showed that the failure to secure complete conversion of ethylsulphuric acid into H_2SO_4 in the U.S.P. assay is due to presence of alcohol. This, instead of being condensed in a reflux condenser, as directed in U.S.P., should be evaporated in an open vessel on a water bath. The latter method leads to exact results in the assay. The paper was discussed by Doctors Kebler, Raubenheimer, Taylor, Arny, Long and Randall.

Louis Hogrefe presented two papers: *The Registration of Proprietary Remedies* and *A Bill to Register the Use and Registration of Professional Degrees in New York State.* These were discussed by Doctors Long, Weinstein, Kebler, Raubenheimer and Taylor. Prof. Otto Raubenheimer displayed copies of the U. S. P. IX and N. F. IV and pointed out the activities of the chemists in the revision of the Pharmacopœia. He explained the delay in the publication of the standard work and made a plea for the coöperation of the pharmaceutical chemists, and furthermore advocated a Symposium on the Chemistry of the U.S.P. for the next meeting of the Section. Doctor Long asked for the upbuilding of the Division of Pharmaceutical Chemistry and Professor Arny called attention to the excellent Digest of Comments on U. S. P. and N. F. by Wilbert and Motter, of the Public Health Service.

Dr. H. V. Arny presented *A Demonstration of Standardized Colored Fluids,* a continuation of his work presented before the Eighth International Congress of Applied Chemistry and the American Chemical Society. He displayed a beautiful array of shades of the acid Co–Fe–Cu colors and the alkaline Co–Cr–Cu. A lively discussion ensued in which Doctors Taylor, Hogrefe, Long, Raubenheimer and Weinstein took part.

The newly elected officers are: Lyman F. Kebler, chairman; George D. Beal, secretary, re-elected.

CONFERENCE ON MEDICINAL CHEMICALS.

Among the many industrial conferences held during the convention the one on Medicinal Chemicals is of greatest importance to the pharmacist. This was held in Rumford Hall, Chemists' Club, on Friday afternoon, September 29, Dr. Harold Hibbert, presiding. In his address he called attention to the coöperation between university and industry, to the need of proficient industrial chemists, to the adequate supply of raw materials, to trade conditions, sales force, markets and tariff protection.

Professor Virgil Coblentz spoke on the low grade and adulterated raw materials, and also on the solubility of glass. According to his experiments this ranges in the following order: Blue, amber, green and flint glass. This subject was discussed by Doctor Raubenheimer, who called attention to the treatment of glass ampules before filling and also to the chapters on sterilization in U. S. P. IX and N. F. IV.

A representative of the Russian Oriental Trading Company spoke on the trade conditions in Russia regarding chemicals and drugs which are now under the supervision of the Imperial Medical Department. H. J. Schnell gave statistics on the value of the drug trade in the United States, which paper was discussed by Prof. C. E. Vanderkleed and Virgil Coblentz. Quite a lively discussion took place on beechwood creosote, phenolphthalein, acetphenetidin and other scarce chemicals. Dr. C. M. Joyce, secretary of the New York Section A.C.S., spoke on the U.S.P. standard for cresol, but unfortunately he based his criticism on the U. S. P. VIII and not on the ninth revision.

Another compliment was paid to pharmacy by Prof. Wilder D. Bancroft in his lecture on *Collodial Chemistry* in the General Session, on Tuesday, September 26, when he called attention to the valuable work done by Prof. John Uri Lloyd, which was presented before the American Pharmaceutical Association.

EIGHTEENTH ANNUAL CONVENTION OF THE NATIONAL ASSOCIATION OF RETAIL DRUGGISTS.

The Eighteenth Annual Convention of the National Association of Retail Druggists was held in Indianapolis, Ind., September 18 to 22, 1916. The attendance was large, over one thousand being registered. The following officers were elected: President, Robert J. Frick, Louisville; vice-president, Walter H. Cousins, Dallas; second vice-president, E. W. Stucky, Indianapolis; third vice-president, W. B. Cheatham, San Francisco; secretary, Thomas H. Potts, re-elected, and treasurer, Grant W. Stevens, Detroit, Mich.

The following were elected members of the Executive Committee: James F. Finneran, Boston, chairman; James P. Crawley, Chicago; T. F. Hagenow, St. Louis; Charles H. Huhn, Minneapolis; Charles F. Harding, Cincinnati, and S. A. Eckstein, Milwaukee.

Among the resolutions that were adopted by the convention are the following:

That the National Association of Retail Druggists make provision for carrying on a campaign of education, which will acquaint the public with the benefits of resale-price maintenance to the consumer, and we strongly urge that a part of this campaign be the arranging and conducting of public meetings at which the principle of resale-price maintenance shall be explained and the desirability of legislation embodying this principle be advocated.

Deferment of U.S.P. and N.F. Officialization Asked.—That the National Association of Retail Druggists request the Federal authorities to defer the official application of the ninth revision of the Pharmacopœia and the fourth edition of the National Formulary until after January 1, 1917.

Participation in U. S. P. Revision Sought.—That steps be taken to have this Association represented on the next U. S. P. Revision Committee.

Open Mails for Medicines Favored.—That the National Association of Retail Druggists favors an amendment to the postal laws that will make it possible to send medicines containing poisons through the mails under such restrictions as to packing and so on, as will prevent their possible injury to the mails or those handling the same.

Discrimination Condemned.—That in our opinion it is contrary to the best interests of the retail drug trade to handle, display, or offer for sale any copyrighted or trademarked preparation or atricle in any size or style of package if the same trademarked preparation or patented article is offered to the consumer in any other style or size of package which is refused to the retail drug trade.

Premium Schemes Opposed.—That the National Association of Retail Druggists reaffirm its opposition to the giving of trading stamps, coupons, gifts and the like, and use its power to have created National and State legislation to abolish this practice.

The Supreme Court of the United States has sustained the constitutionality of the right of the respective States to pass legislation imposing a license fee upon persons, firms, and corporations using or furnishing trading stamps or coupons in connection with the sale of any goods, wares, or merchandise.

That the National Association of Retail Druggists instruct its Legislative Committee to prepare a model anticoupon or trading stamp measure, for submission to the Legislatures of various States through the Legislative Committees of the respective State Associations.

The Regulation of the Narcotic Traffic.—That all efforts to amend the Harrison Law by the elimination of Section 6 be fervently opposed, and that, if any changes are contemplated in the law, we lend our support to those measures which would tend to strengthen, rather than weaken, the law.

That the Association voice its approval of the effort which is being made to secure a decision from the court which will set aside the unfair and unjust rulings of the Treasury Department, under the Harrison Law.

That our officers be instructed to continue to use their efforts to correct the impracticable rulings and regulations, as applied to the enforcement of the Harrison antinarcotic law.

That we request all states that do not have a law which provides satisfactory regulations with reference to the possession of narcotics by consumers to have such law enacted at once.

To Combat the Medicine Peddler.—That we direct the Executive and Legislative Committees to prepare or have prepared a model antivending measure in time for presentation to the forty-two respective State Legislatures that will meet on or after January 1, 1917.

Selling of Liquors Condemned.—That the National Association of Retail Druggists hereby reasserts and reaffirms its unalterable opposition to the sale of whiskey, brandy, or other intoxicating liquors by retail druggists except for strictly scientific, sacramental, pharmaceutical, medicinal, or mechanical use.

Standard for Whiskey Favored.—That we favor an official standard for whiskey and brandy in order that inferior articles for medicinal purposes may be avoided.

Better State Laws Urged.—That the National Association of Retail Druggists continue its efforts to secure for the druggists of this country better laws for their protection, believing it to be highly desirable for every commander and dispenser of medicine which is intended for the cure or relief of human ailments, to be a regularly licensed and registered pharmacist, without exception.

That we favor amendments to the State Pure Food and Drug laws, Health laws, and Sanitary Inspection laws, that will be applicable to and enforced upon, all alike, regardless of what one's profession or business may be.

That we commend the activity of the American Pharmaceutical Association in its endeavor to provide a model pharmacy law, and tender our assistance in such work wherever and whenever possible.

Continuation of Guaranty Clause Desired.—That we continue our efforts to have the Department of Agriculture provide a simple food and drug law guaranty clause that will not be misleading.

Fair Remuneration of Postal Agents Favored.—That the Committee on National Legislation be, and is hereby, requested to take such action as will regulate the compensation of postal substations according to the amount of business done.

To Prevent Fraud in Measuring Devices.—That the National Association of Retail Druggists recommend the adoption by the United States Government of a method that will prevent the interstate shipment of measuring and weighing devices that do not meet the requirements of the United States Bureau of Standards.

NATIONAL WHOLESALE DRUGGISTS' ASSOCIATION.

The Forty-second annual convention of the National Wholesale Druggists' Association was held in Baltimore, during the week beginning October 2. The meeting was pronounced a most successful one, the attendance was large, the results were satisfactory and the entertainments enhanced by the genuine spirit of hospitality. Chicago was selected for the next place of meeting.

The new president is James W. Morrison, of Chicago, and Harvey H. Robinson, chairman of the local committee which arranged the details of the convention and who did so much for the pleasure and comfort of the delegates, was chosen first vice-president.

Other officers elected were William Scott, of Indianapolis, Ind., second vice-president; F. A. Solomons, Savannah, Ga., third vice-president; S. D. Andrews, Minneapolis, Minn., fourth vice-president, and Nelson V. Snow, Syracuse, N. Y., fifth vice-president. The new board of control is composed of Charles E. Bedwell, Omaha, Neb., chairman; George P. Merrell, St. Louis, Mo.; A. D. Parker, New Orleans; F. C. Groover, Jacksonville, Fla., and L. D. Sale, Los Angeles, Cal.

The Board of Control, after being installed, re-elected F. E. Holliday, of New York, secretary, and Evans E. A. Stone, of New York, assistant secretary, of the Association. The

Title Guarantee and Trust Company, of New York, was appointed treasurer.

Dr. J. H. Beal as representative of the American Pharmaceutical Association delivered an address on "A Plea for Sanity in Drug Legislation." Among his concluding remarks was the following:

"The tendencies in legislation represent a condition that constitutes a serious menace to the welfare of every business unit of the drug trade, whether manufacturer, wholesaler or retailer. For years the drug trade has served as a sort of experimental guinea pig for the doctrinaire reformer to try his foods upon."

Chairman Joseph P. Remington, of the U. S. Revision Committee, delivered an address on the new United States Pharmacopœia.

Each day had its special entertainments, among these, an oyster roast at Stonehouse Cove as guests of the Pompeian Company; Thursday Dr. and Mrs. A. R. L. Dohme entertained the members and friends at their home, "Chestnutwood," Roland Park. This was a most delightful occasion. Dances symbolic of various poetic ideas were given by Miss Ruth Cramer, of Baltimore. These dances were highly artistic and were a real treat. Luncheon was served and the house, one of the finest around Baltimore, was thrown open to the visitors.

At night the annual banquet was served in the ball room of the Belvedere.

On Friday Sharp & Dohme entertained the entire convention with a boat ride on the Patapsco River and Chesapeake Bay to Annapolis and return. Luncheon was served at Carvel Hall. The visit to the United States Naval Academy and other points of historical interest was greatly appreciated and will long be remembered.

CHANGES OF ADDRESS

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESSES SINCE AUGUST 18, 1916.

IKAN, A. L.,
From Residence unknown.
To 1200 Frankford Ave., Philadelphia, Pa.

FLETCHER, J. M.,
From c/o Bratton Drug Co., Palestine, Texas.
To Oak Cliff Pharmacy, No. 1 Dallas, Texas.

TRUBY, GRACE,
From Presbyterian Hosp., Northside, Pittsburgh, Pa.
To 502 Kely St., Wilkinsburg, Pa.

AYERS, J. R.,
From 101 Chestnut St., Everett, Mass.
To 39 Mountford St., Boston, Mass.

LAMB, E. F.,
From 1212 High St., Bellingham, Wash.
To 1200 High St., Bellingham, Wash.

LUCAS, F. K.,
From Avon, N. Y.
To 365 Davis St., Elmira, N. Y.

HESS, P. L.,
From 3442 Paseo, Kansas City, Mo.
To 3636 Harrison Blvd., Kansas City, Mo.

BREWER, J. S.,
From 2113 Franklin Ave., St. Louis, Mo.
To 4603 Westminster Pl., St. Louis, Mo.

CRAINE, P. P.,
From Elyria, Ohio.
To 121 E. River St., Elyria, Ohio.

NORTH, H. H.,
From 164 Grant Ave., Jersey City, N. J.
To 984 Simpson St., New York, N. Y.

BACON, G. C.,
From 2038 Cherry St., Philadelphia, Pa.
To Residence unknown.

Seith, L. F.,
From Military Hosp., Zamboango, Mindanao, P. I.
To Residence unknown.

Bratter, B.,
From 1204 Evergreen Ave., New York, N. Y.
To Residence unknown.

Tyson, L. R.,
From Midvale, Idaho.
To Sheridan, Wyoming.

Cowan, E. L.,
From 82 Congress St., Rumford, Me.
To Boston, Mass., c/o F. M. Keeler Co.

Kaminski, T. C.,
From 214 33d St., Brooklyn, N. Y.
To P. O. Box 163, Long Island, N. Y.

Powell, Muzelle,
From Klemme, Iowa.
To Hiteman, Iowa.

Miller, A. N.,
From 306 E. 165th St., New York, N. Y.
To 1 Gates Ave., Brooklyn, N. Y.

Holroyd, R. M.,
From 92 Beverly Ave., Morgantown, W. Va.
To Athens, W. Va.

Brittain, W. L.,
From 1911 Williams Ave., Norwood, Ohio.
To Madison Rd. and Gilmore, Cincinnati, Ohio.

Bruder, O. E.,
From 4252 N. Lincoln St., Chicago, Ill.
To 3036 Eastwood Ave., Chicago, Ill.

Green, W. W.,
From Steamboat Springs, Col.
To Residence unknown.

Bloch, J. M.,
From 17 Poplar St., Richmond Hill, Long Island, N. Y.
To Residence unknown.

Woolsey, J. F.,
From 1104 Euclid Ave., Cleveland, Ohio.
To Residence unknown.

DECEASED SINCE AUGUST 18, 1916.

Strauss, David,
Newark, N. J.

Schadt, Conrad,
Amana, Ia.

RESIGNED SINCE AUGUST 18, 1916.

Sauerbrun, O. O.,
Columbus, Ohio.

Lewis, G. R.,
Cripple Creek, Col.

Strickland, F. N.,
Providence, R. I.

Blum, O. C.,
Columbus, Ohio.

La Wall, Edgar Seiple,
Catasuqua, Pa.

UNITED STATES PUBLIC HEALTH SERVICE

List of changes of duties and stations of commissioned and other officers of the United States Public Health Service, for the seven days ended September 27, 1916.

Prof. E. B. Phelps. Directed to attend the meeting of the American Chemical Society at New York September 25–28, 1916. September 22, 1916.

Pharmacist Henry Gahn. Relieved at New Orleans, La., and proceed to Pensacola, Fla., Quarantine Station. September 15, 1916.

Pharmacist E. S. McGuire. Relieved at Cleveland, O., and proceed to Evansville, Ind., Marine Hospital. September 15, 1916.

Pharmacist Charles Slough. Relieved at Gulf, Miss., Quarantine Station and proceed to Chicago, Ill., Marine Hospital. September 15, 1916.

Pharmacist Frank L. Gibson. Relieved at Chicago, Ill., and proceed to Cleveland, O., Marine Hospital. September 15, 1916.

Pharmacist W. H. Keene. Relieved at Evansville, Ind., and proceed to New Orleans, La., Marine Hospital, September 15, 1916.

Public Health Statistician Edgar Sydenstricker. Proceed to Washington, D. C., for temporary duty in the compilation of data relating to health insurance. September 22, 1916.

Granted four days leave of absence enroute. September 25, 1916.

Sanitary Chemist H. B. Hommon. Proceed to Salem, Va., and places in that vicinity in connection with studies of industrial wastes. September 20, 1916.

Rupert Blue,
Surgeon-General.

BOOK NOTICES

Year-Book of the American Pharmaceutical Association.

Volume III of the Year-Book of the American Pharmaceutical Association has doubtless by this time reached all the members entitled to receive this volume. It is a book of nearly 900 pages and prepared by the Reporter on the Progress of Pharmacy Julius Arnold Koch, with the collaboration of Harry V. Arny, Frederick J. Blumenschein, Linwood A. Brown, Karl S. Burkett, C. Lewis Diehl, Louis Saalbach, Clyde M. Snow, Julius W. Sturmer, Martin I. Wilbert, John H. Wurdach and Otto Raubenheimer.

Fifty-six pages are given over to the roster of the Association, the constitution and by-laws, and a report on various funds of the Association. An alphabetical and geographical list of members is appended, and an excellent index of subjects with cross references, together with an author's index making reference to articles contained in the book very convenient.

The Reporter submits that he hardly expects that this Year-Book will compare favorably with the excellent reports on the progress of pharmacy in previous years under direction of Professor C. Lewis Diehl, and that he will be satisfied with the report if fairly representative of the progress of pharmacy. In this he certainly has succeeded, for the present edition is a worthy successor of those that have preceded it. The Reporter invites constructive criticism which will be helpful in the preparation of the next Year-Book.

In compiling the report the general plan followed in previous years has been retained and only a few minor changes in the classification of the subject matter made. Among these, the arrangement of Organic Materia-Medica in alphabetical order, instead of under the natural orders. This arrangement seems to us more convenient for reference than the former plan.

The general divisions of the Year-Book are classified into subjects under Pharmacy, Materia-Medica, Inorganic Chemistry and Organic Chemistry. Pharmacy is subdivided into general subjects which deal with pharmacopœias, legislation, laws pertaining to the drug business, associations and colleges. Another section takes up apparatus and manipulations, while the third division relates to preparations, and the last to new remedies and trade-named preparations.

The abstracts of Materia-Medica are divided into general subjects, vegetable drugs, and animal drugs and products; Inorganic Chemistry subjects are considered under non-metallic elements and metals. Organic Chemistry is treated under the following heads: Volatile Oils and Derivatives; Alcohols and Derivatives; Aromatic Derivatives; Fixed Oils and Fats; Carbohydrates; Organic Acids; Organic Bases; Glucosides and Neutral Principles; Coloring Matters; Proteins; Ferments and Enzymes; Sera and Vaccines; Urine, Blood and Biliary Compounds.

The abstracts show careful study and give in a very concise way the important essential information required on the subject, and expected in a book of this kind. Each subject quotes the publication from which the articles abstracted are taken so that, when necessary, the original contribution may be consulted. The typography is good and follows the usual style adopted in the publication of the Year-Book.

By the completion of this work the members of the Association again have a most excellent reference book that will doubtless be frequently consulted by them with much satisfaction. The Reporter on the Progress of Pharmacy, after his election, at once prepared copy for the book, and whatever delay may have occurred was not through any fault of his. A point that is sometimes overlooked by the members is, that a Year-Book cannot be issued until some time after the close of the year for which these abstracts are made, hence under the most favorable conditions can hardly be issued until about April of the succeeding year.

For the information of those who desire to purchase a copy of the Year-Book, this issue, as well as preceding volumes, may be obtained by addressing Secretary William B. Day, 701 South Wood Street, Chicago, Ill. The price is $4 per volume.

Transactions of the Section on Pharmacology and Therapeutics A. M. A.

Transactions of the Section on Pharmacology and Therapeutics of the American Medical Association at the Sixty-seventh Annual Session, held at Detroit, Michigan, June 13 to 16, 1916. American Medical Association Press, Chicago, 1916. This book of

172 octavo pages is just being distributed. In addition to a list of the officers of the Section and a brief presentation of the minutes of the Sessions of the Section at the meeting in Detroit, June 13 to 15, it includes reprints of the several papers that were read at the several Sessions of the Section. The first four papers in this book are of special interest to pharmacists, as they deal primarily with the work of the Council on Pharmacy and Chemistry and with the propaganda of the Council for Useful Drugs. These several papers are as follows:

The Duty of the Medical Profession Toward the Council on Pharmacy and Chemistry. Robert A. Hatcher.

The Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association. Torald Sollmann.

The Work of the American Medical Association Chemical Laboratory. W. A. Puckner.

Useful Drugs. Martin I. Wilbert.

The discussion of these several papers, which is also produced in the book before us, shows that the medical profession generally is awakening to the need of a systematic propaganda in the rational use of drugs.

As an illustration of the recent development in prescription writing it may be well to quote from the remarks by Dr. O. T. Osborne of the Medical Department of the Yale University, who in discussing secrecy in prescription writing, said: "Latin is not now required for entrance in most medical schools, and the mistakes in Latin on prescriptions are frequent and ridiculous. Also, if we decry the secrecy of proprietary mixtures, it is hardly advisable to be mysterious in prescription writing. For instance, let "Aqua Gaultheriæ" be written "wintergreen water." The State Examining Board of Connecticut will now accept English prescriptions.

Dr. N. P. Barnes, of Washington, D. C., in further commenting on this subject, said in part: "We spend too much time on prescription writing. We hammer at this year after year—the combining of four drugs in a prescription written in Latin. . . . When you see a family well informed on hygiene and sanitation you can depend on it that the family physician is a good doctor."

The remaining papers in the book deal primarily with the use of drugs and the general limitations of therapeutic measures.

M. I. W.

Reports of the Council on Pharmacy and Chemistry, and the Chemical Laboratory, A. M. A.

The reports of the Council on Pharmacy and Chemistry of the American Medical Association that have appeared from time to time in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION are now reprinted in book form. The object is to make these reports available to scientists in general, especially to chemists and pharmacologists.

The annual reports of the Chemical Laboratory have also been published. The laboratory was established primarily to aid the Association's Council on Pharmacy and Chemistry, and since its establishment the sphere of the Laboratory's activities has constantly widened. This little volume contains reprints of contributions to the Journal involving assay methods, abstracts of reports of the Council on Pharmacy and Chemistry and also reports not heretofore published.

In previous years the greater portion of the Council's investigations have not been published in the JOURNAL for the assigned reasons that manufacturers should first be given an opportunity to conform to the Council's requirements, and that comparatively few physicians were interested in the composition of these products. It is now stated that physicians are seeking information regarding the preparations, and relative to the first reason for delay given, sufficient time has elapsed for manufacturers to comply, if such was their intention.

Regardless of what may be the individual views anent the value of the preparations reported on. there is certainly much useful information for the pharmacist in the books. He should be informed of the composition of proprietaries dispensed and for sale by him, and he should also know what the views of the American Medical Association are concerning these preparations.

The reports are thorough in the details of investigation and much of this information may be utilized in other determinations, or in dispensing by avoiding the errors pointed out, or otherwise profiting by the suggestions conveyed through these assay processes, or the reports on therapeutic action.

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, $4.00; Canada, $4.35; foreign countries, $4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

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Contributions: The JOURNAL accepts no responsibility for the opinion of its contributors. Contributions should be sent to the Editor; use only one side of the sheet for writing, and double-space the lines. Articles are accepted for publication on condition that they are contributed solely to this JOURNAL; and "all papers presented to the Association and its Branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by consent of the Committee on Publication." (By-Laws, Chapter X, Article 11.)

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Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the JOURNAL. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

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The American Pharmaceutical Association would be pleased to receive back numbers of the JOURNAL. There are some who have duplicate copies, and their consideration would supply the wants of others. The JOURNALS should be addressed to THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 253 Bourse Building, Philadelphia, Pa. Only the following numbers are desired:

1912	1914	1915	1916
April	August	January	January
May	September		February
	October		March
			April

JAMES WILLIAM MORRISSON
CHICAGO
President of the National Wholesale Druggists' Association
1916—1917

JAMES WILLIAM MORRISSON

JOURNAL OF THE
AMERICAN
PHARMACEUTICAL
ASSOCIATION

VOL. V NOVEMBER, 1916 NO. 11

JAMES WILLIAM MORRISSON.

James W. Morrisson, elected president of the National Wholesale Druggists' Association at the Baltimore meeting of that organization, was born in Richmond, Ind., September 1, 1872, the son of the late Robert Morrisson, wholesale druggist of Richmond, Ind., and thereafter of Chicago.

The corporation, Fuller-Morrisson Company of Chicago, of which the subject of this sketch is the president, was formed by the consolidation of Fuller & Fuller Company and Morrisson, Plummer & Co. The latter firm started in business at Richmond, Ind., in 1873, three years later the stocks of E. Burnham & Sons and the latter were combined and the firm became Morrisson, Plummer & Co.

James W. Morrisson has been a resident of Chicago during nearly all of his life and is identified with the progress of this commercial center. For several years he has been active in the Chicago Association of Commerce as its general secretary, and in 1915 as its first vice-president; this gave him control of the first of the four main divisions into which the work of this Association is divided, namely, the interstate division, local, foreign trade, and civic industrial. He is a member of this Association's Senior Council, of the Finance Committee, Chairman of the Committee on Soldiers Relief and Welfare and a member of the Executive Committee on Military and Naval Affairs.

Mr. Morrisson is a member of many social and literary clubs and organizations. In February, 1900, he married Mary T. R. Foulke, daughter of William Dudley Foulke, Civil Service Commissioner under President Roosevelt, and former president of the Civil Service Reform Commission. They have four children, three sons and a daughter.

Mr. Morrisson was elected chairman of the Board of Control of the National Wholesale Druggists' Association in 1915 and has served this Association in many other capacities.

Mr. Morrisson joined the American Pharmaceutical Association in 1912. While his activities have been chiefly for the Association of which he is now the president, this sketch, aside from recognizing the honor conferred on a fellow-member of the A. Ph. A., is to evidence the coöperative spirit that exists in these two organizations.

E. G. E.

EDITORIAL

E. G. EBERLE, Editor **253 Bourse Bldg., PHILADELPHIA**

A LETTER FROM THE PRESIDENT OF THE A. PH. A.

To the Members of the American Pharmaceutical Association:

Greetings: I regret greatly that I was unable to be present at the Atlantic City meeting. No one could possibly have more sincerely desired to be present than I.

You have bestowed upon me one of the greatest, if not the greatest, honor in the gift of American pharmacy. I do not know whether I am worthy of this honor, but I want to do the utmost in my power to become so if I am not and to justify your confidence in me. The grand old American Pharmaceutical Association, which I have always loved devotedly and to which I have always given my fullest and sincerest loyalty because it stands for all of my own highest professional ideals, is more than an association: it is an influence, a potent influence representative of the highest pharmaceutical thought, endeavor and action. This influence should steadily grow and be directed to flow into and permeate the least as well as the greatest of pharmaceutical activities. The Association's influence and endeavor should represent dynamically the centralized influence and endeavor of all high-minded pharmacists in whatever division of pharmaceutical activity they may be engaged, and only in the degree in which the Association represents and carries out the combined, harmonious and unified ideals, loyalty and work of individual pharmacists does it fulfil its duty to the calling. To do this it needs the continuation and increase of the already noteworthy support and advice of the individual members, for all progress has its initiative and source in individuals who contribute and combine their gifts of work and devotion to a common cause.

Every pharmacist's duty is at least twofold: to himself and to his chosen calling. I like to think of our beloved calling as something concrete, as something to which we owe devotion and loyalty. This loyalty and allegiance we cannot better express and emphasize than through the channels of worthy associations. I take it that this conviction has been the actuating influence of every pharmacist who sought affiliation with state and national associations. If I am right, the duties of the American Pharmaceutical Association are clear and simple and in my humble endeavor to aid in stimulating the performance of these duties in their manifold aspects I invite the assistance of every member of the Association.

I have many ideas of my own of what the Association is yet to accomplish, but I want advice and suggestion that would be helpful and constructive in the work attaching to the high office to which you have elected me. Owing to the nature of the organization of the Association, the duties and powers of the president are quite limited, but within these limitations I desire to do my fullest duty. I can and will write a presidential address that will point out constructively how the welfare of the Association may be maintained and augmented. In this respect especially do I invite suggestion and help.

Hoping that many will write me freely and frankly, I am, in the interests of all that is best in pharmacy,

Faithfully yours,

FREDERICK J. WULLING,
President.

MINNEAPOLIS, November 1, 1916.

SANE AND SENSIBLE DRUG LEGISLATION.

IT is an obsession of the American people that legislation is a panacea for all the social ills of the body-politic—that, given a sick or undesirable condition of the city, state or nation, all that is necessary to do is to diagnose the case and prescribe a legal remedy, and the case will take care of itself! There was never a greater fallacy. No law is stronger than the public opinion behind it. A weak law backed by public opinion is irresistible, and a strong law without such support is impotent.

The proper treatment of civic ills is not only legislative, but also educational; not only the education of the public regarding the necessity for the law, but also the education of the legislators, so that they shall enact legislation that shall be simple, direct and efficient.

During the past ten years there has been a wonderful growth and development in the moral sense of the American people. Legislation tolerated ten years ago is not tolerated to-day; and no men are keener to " keep their ears to the ground " and be responsive to public opinion than legislators.

What we need to-day is not more legislation—there is such a condition as legal-indigestion—but better laws, the perfection of existing laws and the co-ordination of laws between city, state and nation; and most important of all, the proper education of public opinion to the end that the most efficient administration of the law may be had.

The reason why the Federal Food and Drugs Act and the Harrison Act have been effective is because they both appeal to the moral sense of the American people as righteous legislation, and in their framing, technical expert advice has been utilized to a large extent.

Perhaps one of the most striking features of the legislation of recent years has been the practice of giving administrative departments the power to make rules and regulations for carrying out the provisions of acts not inconsistent with the same, thus delegating legislative powers to an executive department.

The giving of such power in a technical law is a step forward in legislative procedure, because with the rapid development of science and art it is impracticable for legislators, who are non-technical men, to anticipate all possible variations of conditions in the administration of technical law, and to provide for them, while with regulations, expert advice may be obtained in the framing of the same, and if these prove to be unjust, they can be readily modified or cancelled; the act itself does not have to be amended.

The danger, however, is that such power may be abused, that the departments, in their zeal to make a public reputation for efficiency, may become unreasonable and bureaucratic and frame regulations that are a serious handicap to the drug trade as a whole, without the compensation of better protection to the general public.

The National Drug Trade Conference, which resulted from a motion made at the 1912 meeting of the American Pharmaceutical Association at Denver by Dr. James H. Beal, has been especially useful in securing coöperative action by the national drug trade bodies and the modification of unreasonable governmental regulations.

At the recent convention of the National Wholesale Druggists' Convention at Baltimore, Dr. Beal made an address upon the subject of "A Plea for Sanity in Drug Regulation," in which he dwelt especially upon the dangers to the drug trade in the interpretation of drug laws and regulations by bureaus and boards in whose hands such interpretation and regulation has been vested by legislative action.

Dr. Beal pointed out the fact that the American drug trade believes heartily in rational legislative protection to the general public against the evils of drug abuses, and in support of such belief it has submitted, without quibble, to the enactment of laws and the promulgation of regulations that were a serious handicap to the drug business as a whole; but it is unalterably opposed to "that excessive paternalism which would deprive the average normal citizen of reasonable freedom of action and tend to loosen his sense of legal and moral responsibility to society and the state." . . . "For years the drug trade has served as a sort of experimental guinea-pig for the doctrinaire reformer to try his fads upon, and unless we learn to oppose effective resistance to such efforts the day is not far distant when the drug store will become merely a museum of the things which we were once permitted to sell."

The whole drug trade should be advised as to the serious menace of the tendencies in legislation described and take proper steps to secure coöperative action, preferably through the National Drug Trade Conference, which represents all the national drug trade bodies. But equally as important, the general public itself should be made aware of these tendencies, to the end that public opinion may be aroused to act as a check upon the passage of unwise legislation and the promulgation of dangerous and unjust regulations.

J. W. England.

THE BEGINNINGS OF CUT PRICES.

IT is safe to say that the offer of reduced prices on articles of merchandise, in perfect, salable condition and for which there is a demand, is intended for increasing the volume of sales in the stores adopting such a plan.

Many things are to be considered in connection with such methods, if profits are to be derived, and this of course is the purpose for which the system is inaugurated. The reduction in sale price must be sufficient to attract attention and bring more customers into the store. It is presumed that goods also will be sold, as a result, on which the usual profit is charged, perhaps even a greater advance over cost exacted, in order to make up for the diminished profit on the other lines.

An increased volume of sales certainly requires a larger investment and the overhead charges will be greater unless they are kept down by a more frequent turning of stock. If no profit is made on the goods sold at cut prices, or this is not sufficient to meet the relative overhead expense, then it may be assumed that the other articles, which make up the deficiency, are also sold at cut prices. In other words, it might be possible to sell an amount of unprofitable merchandise, for one reason or another, to consume the profits on all sales of the store, and though these were largely augmented, the proportion in the two classes of sales, on which the commercial success of such system is based, was not maintained or obtained. It is fair to assume that with proper management a profitable business can be conducted along these lines, but it is very evident that such a system demands constant attention to its details. The business is subject to the varying trade conditions, changes in surroundings and competition, at least in a degree, just like that of other stores where uniform, fixed prices are adhered to.

There is another and perhaps more serious view to be taken of the situation, namely, cut prices after a while become the fixed prices, when they are no longer attractive; then a continuance of the system will demand a reduction of the selling prices of other items, whereby the relative proportion of profit-bearing goods is still further decreased. The manufacturers did not reduce their prices because some retailers saw fit to sell proprietary medicines below the stated figures, even though eventually nearly all dealers were compelled to reduce the retail prices if they wanted to sell any of them and to dissuade their patrons from going to other stores. The cut price became the fixed price.

It is unreasonable to expect that a merchant will, for a long time, permit another to catch his trade by baits, if he can prevent it; he will use the same kind or, if possible, something more enticing or seductive. Perhaps as a result of cut prices there followed a larger consumption of proprietary medicines, but, if so, non-profitable sales were increased to that extent. It is not likely that the number of these sales at present, per store, is greater than when full prices were charged. This is delving into past history, but the purpose of this writing is to bring these facts to bear on the practice which is at present becoming very popular, namely, to sell two articles for the price of one, plus one cent, on certain days. The object is advertising, so was the other, and so long as these schemes are promoted in a few stores, these will benefit temporarily. It is unreasonable to expect, however, that others, who are injured by abstraction of trade, will not attempt to follow or devise similar selling and advertising plans, until the custom becomes general, and then the proportion of unprofitable sales will again be increased.

Unfortunately many sundry articles, which have heretofore helped to make up profits, are included in these sales; this can only signify to the thinking patrons that there is no uniformity in the prices of goods sold in drug stores, or ordinarily, excessive charges are made. All other trades are advancing prices on goods that druggists must have, the high cost of living is worrying the average citizen, but in drug stores they persist in devising plans which are bound finally to eliminate the profit on a very large proportion of the total sales.

It cannot well be disputed that under the present systems and combinations the latter method does not directly or indirectly yield profit, but the scheme is wrong and will be extremely hurtful if persisted in. However profitable a selling plan may be for a time, it is not desirable if thereafter it brings large losses or destroys the possibilities of continued successful conduct.

Although the volume of sales in a drug store are relatively small and the profits should be correspondingly large, there are few other businesses that have sought with the same persistency to cut profits on the goods they sell, discovered more ways to increase overhead expenses and otherwise add to their troubles, than have druggists.

A recent article on the "two for the price of one" method of advertising and selling concludes by saying that "it is in the last analysis a question for every druggist to decide for *himself*." We contend that this is not the case, it is a question of far greater importance; such methods injure every business, and are therefore beyond individual right. It is certainly inconsistent to talk of price maintenance, and then devise schemes, and put them into practice, which mean the very opposite, prompted by the very selfish reasoning that only a very limited number can or will compete.

E. G. E.

COMPULSORY HEALTH INSURANCE.

IN this day of adjusting everything by legislation there is bound to be an augmented dispensation of injustice. Men study plans and in accordance systematize and conduct their business; without advice, legislators cannot have this insight, nor a knowledge of the details. On the other hand, business men do not give sufficient attention to what legislators are doing; as a result, legislation is enacted which injures their business—by taxation, diversion of trade, increased cost of its conduct by regulations which at first are not fully understood, and for that reason pass through "legislation mills" without opposition.

The "eight hour law" has largely increased the expense accounts of railroads, but every business and individual, in one way or another, will share in paying a part of this increase. Other labor organizations have taken courage and advanced their scale of wages—the same deductions apply. But this is simply to indicate that industries, as well as individuals, are interdependent.

Socialistic and paternalistic ideas are factors in many laws, and influence society, the conduct of government and business. For many years fraternal and labor organizations have issued sick-benefits and accident insurance to their members, and some of them now arrange for medical attention, medicine and sick-room supplies, or provide for hospital and dispensary service. This has taken trade away from the drug stores, but the progress has been gradual and, therefore, limited consideration has been given the subject, especially as this would do little, if any, good. Now, however, in line somewhat with the accident insurance laws of many states, legislation has been attempted to provide sick-benefits and medicines or hospital and dispensary service by law, for employees. These bills have varied somewhat in the wording, but stipulate that this expense be divided in certain ratios between employee, employer and the state; some would even extend the benefits to members of the family. It needs no very discerning mind to discover how far-reaching and influential such legislation would be, but the object of this writing is to impress that druggists would be most seriously affected. Not only would they be assessed for their pro rata in the event of sickness of their employees, but share in paying the taxes which create the state funds to meet the cost of the benefits; they themselves would not be beneficiaries, and finally their business would be injured because such medical supplies would not be bought at drug stores, but purchased from the lowest bidders.

Charity should be fostered, it can be misdirected; what may seem charity may be an illusion or delusion. Organizations that furnish medical service and medicine to their members, on contract, should be discouraged. Such methods can only lead to neglect of the insured, while at the same time they are doing injury to medicine and pharmacy. Proposed compulsory health insurance bills and all other legislation that tends to make wards of intelligent human beings should be opposed by druggists, as citizens, and by their local, state and national associations. Legislatures will soon convene.

E. G. E.

THE COÖPERATION OF STATE AND FEDERAL LAWS IN REGULATING SALES OF NARCOTIC DRUGS.

SOON after the United States Supreme Court rendered the decision, in which it was held that *"any person,"* under the Harrison Law, applied to any person in the classes specified in this law, and that only producers, dispensers, dealers and sellers who had not registered and paid the special revenue tax, provided for by this act, were subject to prosecution, we presented an editorial entitled, " State Narcotic Laws Should Complement the Harrison Act " (see pp. 682–684).

Recently Justice Garvin of the New York Court of Special Session has held the regulations of the Boylan-Bloch Law of New York State, limiting the amounts of narcotic drugs handled by, and in the possession of, *unlicensed* and *unregistered* persons, constitutional and their enforcement a "proper exercise of the police power." He expressed his opinion as follows:

"In such a cosmopolitan population as now characterizes many of our greatest cities, new and complex problems present themselves from time to time in connection with the maintenance of order. The use of the habit-forming drugs is one of these problems, and I am of the opinion that the attempt of the New York State Legislature to limit their (the narcotic drugs) use to those who receive them from a physician for medicinal purposes is a *proper exercise of the police power.*"

The Federal law is a revenue measure, and although it is contended that there is a possibility of adequate amendment, for making it unlawful under the Act for others than registered persons to have the proscribed drugs in their possession, the decision referred to points to the better way for such prohibition, namely, by state laws.

The legislatures of many states will soon convene and therefore consideration should be given to this important matter. Unless pharmacists outline the draft there may be defects or inconsistencies in the legislation. State laws that do not place restrictions on prescribing and office dispensing of narcotics should be corrected, for the violators are not infrequently physicians or those who are engaged in the dual capacity of drug store owners and physicians. And through these sources pharmacists, as a class, are often stigmatized.

Other states besides New York have laws making the possession of the proscribed drugs, except under certain provisions of the enactments, unlawful; we name California, North and South Dakota, Florida, Maine and Massachusetts, and there are more. Decisions have been rendered in a number of test cases, so that by reference to and using one or the other of the statutes as a guide there should be no doubt as to the constitutionality of such legislation, and thereafter of the enforcement, if the officials will do their duty.

In some states, it is contemplated to establish asylums for the habitués, but such provisions should not be incorporated into an anti-narcotic bill. Unquestionably such institutions provide a better and more charitable way of dealing with these unfortunates than to send them to prison, where there is little possibility of rising above their conditions; the encouragement of a home, properly conducted, may bring happiness to a family and restore the usefulness of some of the habitués, instead of continuing an expense and annoyance to a community. Charity often overlooks that many of these unfortunates were offenders before they became addicted to drugs. The very means of narcotic distribution demonstrates that, but for the sake of a few who are worthy, and all of them are to be pitied, encouragement as citizens should be given to the establishment of such asylums.

Actions prove that there are few, if any, pharmacists who are not ready and willing to lend their assistance to stop the narcotic evil, and an analysis would show that in reality they had comparatively little to do with its origin. Even the so-called legitimate sales were forced on them and were not desired, long before there were anti-narcotic laws.

E. G. E.

SIXTY-FOURTH ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

FINAL GENERAL SESSION.*

The Final General Session of the American Pharmaceutical Association was called to order by President William C. Alpers on Friday, September 8th, 1916, at 3 o'clock P.M.

THE PRESIDENT: The first order of business is the reading of the minutes of the last session, Mr. Secretary.

Minutes of last meeting read by General Secretary Day. (See October issue of the JOURNAL.)

THE PRESIDENT: You have heard the minutes. Are there any remarks? If not they stand approved as read.

The next order of business is the reading of the minutes of the Council.

SECRETARY J. W. ENGLAND: Mr. President, the first minutes to be read are the minutes of the fifth session of the Council of the American Pharmaceutical Association, held at the Hotel Chalfonte, Atlantic City, on Wednesday, September 6th, 1916. Next the adjourned meeting of the fifth session of the Council, sixth session of the Council, reorganization meeting of the Council, second session of the new Council on Friday, September 8th, and the recess session of the Council on Friday, September 8th, at 2 P.M.

(All of these were read and will be printed under Council Business.)

THE PRESIDENT: You have heard the minutes of the Council; what is your pleasure?

A MEMBER: I move they be approved.

(This motion was duly seconded and the Association voted to approve the minutes as read.)

THE PRESIDENT: I call for the report of the Committee on Time and Place of meeting.

REPORT OF THE COMMITTEE ON TIME AND PLACE.

Your Committee on Time and Place have received invitations from seven different cities to be considered as places for holding the 1917 Convention, as follows: (1) Kineo, Maine; (2) Tampa, Fla.; (3) Omaha, Neb.; (4) Havana, Cuba; (5) Indianapolis, Ind.; (6) Cincinnati, Ohio; (7) Atlantic City, N. J.

Furthermore, Chicago has submitted its request that it be considered in connection with the Time and Place for the 1918 Convention.

In our opinion the following are most worthy of consideration: (1) Kineo, Maine; (2) Havana, Cuba (including stop-over in Tampa, Florida); (3) Omaha, Nebraska.

We recommend that one of these three places be selected.

Respectfully submitted,
M. L. PORTER,
EDWIN L. NEWCOMB,
ERNEST BERGER.

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* The first general session was reported in September number, p. 910; the second session in October issue, p. 1021.

The President: You have heard the report; what is your pleasure?

H. P. Hynson: Mr. Chairman, I move as a substitute for the report, that Indianapolis be selected as the next meeting place.

(This motion was duly seconded.)

Thereafter the claims of various cities were presented. Judge Frank M. Gorman, C. G. Merrell and John C. Otis spoke for Cincinnati; Jose P. Alacan and Joseph P. Remington for Havana, if not for the annual meeting then for a mid-winter session. C. B. Jordan and Frank R. Eldred presented the claims of Indianapolis. C. H. Packard and T. J. Bradley advocated Kineo, Me., and the desire to meet there on account of the 50th anniversary of Maine Pharmaceutical Association. Neils P. Hansen brought forward the advantages of Omaha for a meeting place. E. H. Lenhart invited the Association again for next year on behalf of Atlantic City.

T. J. Bradley made a motion to substitute the name of Kineo, Me., for Indianapolis, and after further advocacy the vote was called for, and the substitute was declared lost after a rising vote.

The motion of William C. Anderson, meeting with a second, Cincinnati was substituted for Indianapolis and a vote called for which resulted adversely to the substitute motion. Indianapolis was then voted on for the next meeting place and the result was favorable for this selection.

The President: There is with us a delegation from the women physicians of the Women's Suffrage Organization who wish to extend greetings to the Association. If there is no objection, I extend the floor to the ladies.

Dr. Mary M. Wolf: Mr. President, Ladies and Gentlemen of the American Pharmaceutical Association: We, a committee of women physicians, representing sections of the United States from the Atlantic to the Pacific, come to you to-day as representatives of the National American Women's Suffrage Association and we bear to you fraternal greetings. I have with me a resolution endorsing our cause. I will read it to you and we would like very much if your Association would see fit to pass this resolution:

" *Whereas,* Our government is founded upon the principles of a democracy, and

" *Whereas,* A true democracy is impossible while one-half of the people is disfranchised,

" Be it resolved, That the American Pharmaceutical Society heartily endorses the principle of woman suffrage."

Ladies and gentlemen, we thank you for this hearing.

The President: Dr. Wolf, in behalf of the American Pharmaceutical Association, it affords me great pleasure to extend to you and your associates our heartfelt thanks for the kind greetings that you have given us. We have also in our Association a Women's Section and the women of the American Pharmaceutical Association have done a good deal of excellent work at the meetings and in the interim during the meetings. We are proud of our Women's Section and we are the more proud of it now that we hear from you, the representatives of the women physicians, and I assure you that the resolution that you have handed us will have proper consideration before this body. In the name of the Association I thank you most heartily.

After considerable discussion it was voted to refer the resolution offered to the House of Delegates.

The President: We have here the report of the committee on Ebert Prize.

REPORT OF COMMITTEE ON EBERT PRIZE.

The Committee on Ebert Prize respectfully report that the members have severally and individually considered the papers presented at the 1915 meeting and have independently and unanimously come to the conclusion that the award should be made to Prof. John Uri Lloyd for his epoch-making discovery of the adsorptive power of hydrated siliceous earths.

(*Signed*) CHARLES H. LAWALL,
ROBERT P. FISCHELIS,
M. R. LAWALL.

THE SECRETARY: I might add that this report was read and accepted or adopted by the Scientific Section.

JEANNOTT HOSTMANN: I move it take the usual course.

(This motion was duly seconded, put before the house and carried.)

THE PRESIDENT: I would call your attention to the fact that we have not decided on the time of meeting and I would like to have a motion that the time of meeting be referred to the Council.

A MEMBER: I move you, Mr. Chairman, the time of meeting be referred to the Council.

(This motion was seconded, put before the house and carried.)

FRANKLIN M. APPLE: In the reading of the minutes of the Council you will notice a recommendation received by the Council from the Section on Practical Pharmacy and Dispensing relative to the recommendation President Beringer made in his address in Detroit in 1914. At that time action on that was referred to the Association, and they failed to do so. Action is necessary by this body to give the power to the Council to carry out that recommendation and I now rise to make a motion that such action be taken and that this Association give that power to the Council.

THE PRESIDENT: Mr. Apple, I wish to say that by approving the minutes that power has been conferred on the Council. No special motion is necessary for that.

FRANKLIN M. APPLE: I just want an absolute expression of opinion on that because it was lost in Detroit and it was surprising to find the state of affairs we were in when we started to investigate.

J. W. ENGLAND: Mr. Chairman, I should like to state that the resolution to the Council asked that the Association authorize the Council to take the step desired. That was approved by the Council and reported to the Association and the minutes were approved and I think that carries with it the authority.

THE PRESIDENT: That carries the authority already conferred, Mr. Apple.

THE SECRETARY: The general membership report has not been made. I will not read it, however, but merely make the statement which I think will be pleasing to you, that the number of new members elected since the last meeting and up to the close of this meeting is the largest in the history of the Association, 448 new members having been elected.

THE PRESIDENT: I will add a few words. I personally, as I stated in my address, have made the best efforts to get new members, but the greatest thanks for getting this large number is due to our members in New York City, particularly to Dr. Diner. He has brought in more members than anyone else and it is very gratifying to know that we have such good workers with us.

JACOB DINER: Mr. Chairman, I wish to correct a misapprehension. We had a New York City chairman on the membership committee, Mr. McCartney, whose untiring efforts should be recognized. Mr. McCartney not only saw the men whom we enrolled as new members, but he was particularly active in keeping in old members who were lukewarm, and I hope this meeting will take due notice of Mr. McCartney.

H. M. WHELPLEY: I had a great deal of correspondence with Mr. McCartney and I must say the way he handled the situation of both delinquent members and new members was exceedingly pleasing and brought results. I move that a vote of thanks be extended to Mr. McCartney for his work on the membership committee.

H. P. HYNSON: Before that motion is put, I would like to present the gentleman to see whether he is worthy.

(Dr. Hynson brings forward Mr. McCartney.)

A MEMBER: In seconding that motion of the gentleman from New York, I want to call attention to the fact that we have brought in over a hundred members through the work of Mr. McCartney and Dr. Diner and the other associate members, over a hundred members from one state and mostly from one city.

(Motion put before the house and carried.)

THE PRESIDENT: Mr. McCartney, I am happy to extend to you this vote of the Association and I hope that you will not fail to continue this good work and come next year with two hundred new members.

THE SECRETARY: Mr. President, I would just like to add a word to the membership committee report. We had excellent work by many of the members of the committee during the year. I had prepared a report at some length giving credit to those members, but our session this afternoon is so crowded with work, it does not seem wise to present it, but it will appear in print in the JOURNAL. I tried to give every one credit for the good work that was done.

THE PRESIDENT: The next order of business is the report of the Committee on the President's Address.

(Vice-President, Charles H. LaWall takes the chair.)

The report of the Committee on the President's Address was read by Chairman J. H. Beal.

Jacob Diner moved that the recommendations of the report be considered *seriatim,* and this motion was seconded by Otto Raubenheimer.

Theodore J. Bradley moved to amend that the report of the committee be accepted and the recommendations be approved. This motion was seconded by H. P. Hynson.

E. L. Patch moved as a substitute, that the report of the Committee be accepted as a report of progress and the committee continued. The motion was duly seconded and after further discussion the mover of the substitute motion contended *that discussions on an incomplete report were out of order.*

After further deliberation the Vice-President stated the question on the substitute motion which was to the effect that the report of the committee be accepted as a report of progress and that the committee be continued.

Before the motion was put, Chairman J. H. Beal inquired whether it was distinctly understood that the motion by Professor Patch meant that this Association approves of the plan of procedure proposed by the committee. The answer was in the affirmative. It was asked that the recommendations of the committee be read; they follow:

RECOMMENDATIONS OF THE COMMITTEE.

After extended discussion your committee recommends the following procedure as the best method of relieving the present rather embarrassing situation:

1. That the Committee on President's Address be continued with authority to transact its business by correspondence.

(The present committee would much prefer to be relieved from this difficult task, but if the Association so desires the members will put their personal preferences aside and remain in office until the business for which the committee was appointed has been concluded.)

2. After a careful study of the President's address and of all facts pertinent thereto, the committee shall present to Mr. Alpers a written statement of its objections to the form and substance of the present address and its recommendations for the changes which should be made therein.

3. If the committee and Mr. Alpers can agree upon the changes to be made, the revised address and the proceedings of the committee with reference thereto shall be reported to the Council, and the latter shall then authorize the publication of the address in the JOURNAL and in all pharmaceutical periodicals which may desire to publish it.

4. That until changes satisfactory to the committee shall have been made, permission for the publication of the address shall be refused.

5. That all communications between the committee and Mr. Alpers shall be in writing in order to prevent subsequent disputes as to their subject matters.

6. That Mr. Alpers shall at all times have the right to appeal from the decisions of the committee to the Council, and also to appeal from the decisions of the Council to the Association in general session assembled.

7. That a complete report of the proceedings of the committee on President's address and of the proceedings of the Council with reference thereto shall be made to the General Session of the Association at its next annual meeting.

In conclusion, the President's address contains numerous recommendations which, if properly phrased and separated from statements or innuendos of which the Committee cannot approve, would be deserving of endorsement. The Committee lacks the time, however, to separate that which it can approve from that with which it cannot agree and recommends, therefore, that no action be taken upon such portions of the address until the latter can be disposed of as a whole.

Jacob Diner stated that he understood the recommendations were approved in the motion of Professor Patch, who said that this is the way he understood the report, and when the report was accepted as a report of progress these recommendations were accepted.

Chairman Beal was asked by Vice-President LaWall whether the committee understood the situation. He answered, yes, the committee is to proceed in the manner outlined in the report.

The substitute motion was approved without a dissenting vote.

(The committee is now working on the duties assigned them.)

(President Alpers resumes the chair.)

THE PRESIDENT: The report of the Committee on Nominations is in order.

S. L. HILTON: Mr. President and members of the American Pharmaceutical Association, in the absence of the chairman of the Committee on Nominations and as secretary of that committee, I beg to present the following report, but before doing so I want to read a communication received by the committee that caused the delay of the report to this session. The communication is addressed to the chairman of the Committee on Nominations: "As the proposer of Mr. C. O. Bigelow, of New York, as one of the nominees for president I, at Mr. Bigelow's request, ask that his name be withdrawn and that another member be nominated to fill the vacancy caused by his withdrawal." This was signed by the proposer, Mr. Thos. F. Main. The committee considered that request and accepted the withdrawal and present for your consideration the following report:

For President: William L. Cliffe, of Pennsylvania; Charles Holzhauer, of New Jersey; H. P. Hynson, of Maryland.

For First Vice-President: Frank R. Eldred, of Indiana; A. R. L. Dohme, of Maryland; Francis Hemm, of Missouri.

For Second Vice-President: L. E. Seltzer, of Michigan; F. B. Haymaker, of West Virginia; Philip Asher, of Louisiana.

For Third Vice-President: Theodore Bradley, of Massachusetts; G. C. Blakeley, of Oregon; Louis Saalbach, of Pennsylvania.

For Members of the Council: F. J. Wulling, of Minnesota; C. B. Jordan, of Indiana; M. I. Wilbert, of District of Columbia; O. F. Claus, of Missouri; G. M. Beringer, of New Jersey; A. B. Bolenbaugh, of West Virginia; Jose P. Alacan, of Cuba; Thomas F. Main, of New York; L. D. Havenhill, of Kansas.

(*Signed*) JOHN C. WALLACE, *Chairman,*
S. L. HILTON, *Secretary.*

Mr. H. P. Hynson requested that his name be withdrawn and not submitted as a nominee.

W. C. ANDERSON: Mr. President, does that make a vacancy in that particular office?

THE PRESIDENT: Yes.

W. C. ANDERSON: I would like to nominate Mr. H. C. Christensen, of Illinois.

(This nomination was seconded.)

THE PRESIDENT: You have heard the nomination, which is seconded; if no objection is raised the name of Mr. Christensen will go in place of Mr. Hynson.

The report is now before us.

CASWELL A. MAYO: I move the acceptance of the report as amended.

This motion was seconded, put before the house and carried.

C. G. MERRELL: I wish to recall a point of business just to straighten out the records. As I understand it, the report of the Committee on Time and Place has not been acted on.

THE PRESIDENT: The time is referred to the Council. The place has been settled, Indianapolis. There is a resolution here from the Section on Education and Legislation.

The Secretary read the resolution which follows:

RESOLUTION PROVIDING FOR A MODEL PHARMACY LAW.

The Section on Education and Legislation recommend to the Association that a committee of three be appointed who, together with the Voluntary Conference already created, shall carry through the plan of preparing a draft of modern laws pertaining to pharmacy which may serve as a model and which shall be known as "The Model of the American Pharmaceutical Association."

W. C. ANDERSON: I move its adoption.

(This motion was duly seconded and carried.)

S. L. HILTON: Mr. Chairman, and members of the American Pharmaceutical Association: In the absence of the chairman of the delegation to the National Drug Trade Conference I have been requested by him to present the report of your delegates to the Drug Trade Conference.

REPORT OF THE DELEGATES TO THE NATIONAL DRUG TRADE CONFERENCE.

To the Officers and Members of the American Pharmaceutical Association:

Your delegates to the National Drug Trade Conference submit the following: The Conference met at the New Willard Hotel, Washington, D. C., December 16, 1915, all of your delegates being present.

A committee consisting of J. H. Beal, Chas. M. Woodruff and Samuel C. Henry was appointed to make an effort to have Treasury Decisions 2213 and 2244 changed. At a hearing held before the Internal Revenue officers on January 31, 1916, briefs were filed and arguments made which resulted in changing these decisions so as to more nearly meet the interpretation and wishes of the drug trade.

Many complaints having come to the attention of the Conference in relation to the enforcement of the Harrison Act and also the regulations pertaining thereto and of the Pure Food and Drugs Act, a committee was appointed and designated "Special Committee on the Interpretation and Enforcement of Food and Drug Laws." Headquarters have been opened at 850 Penobscot Building, where they will be pleased to receive complaints and give the same their attention. A circular letter is being made part of this report. Your delegates recommend a continued affiliation with the Conference. All of which is respectfully submitted,

(*Signed*) John C. Wallace, *Chairman*,
J. H. Beal,
S. L. Hilton.

HOW ARE DRUG LAWS BEING ENFORCED?

To the Drug Trade:

At the meeting of the National Drug Trade Conference held December 16, 1915, many complaints were made of alleged malfeasance, substantial errors of judgment, and improprieties of one sort and another on the part of both federal and state inspectors and agents in the enforcement of the pure food and drug, the narcotic and other laws. Most of these complaints were founded upon a supposed misinterpretation of the law, rules and regulations by subordinates. Doubtless some of these complaints are well founded; and doubtless some of them are based on the misapprehension of the party from whom they first emanated.

Assuming as a matter of course that the heads of the various departments concerned were desirous of enforcing the laws and otherwise discharging their duty impartially and with fairness, the Conference appointed a committee of five to investigate the whole matter of the interpretation and enforcement of food and drug laws systematically and carefully and report at the next meeting of the Conference. This Committee was designated a "Special Committee on the Interpretation and Enforcement of Food and Drug Laws." It desires the earnest coöperation of every manufacturer, jobber, wholesaler and retailer to the end that the report may be complete; that all real evils may be remedied; and all misapprehensions may be removed.

The Committee desires statements over the signature of those having personal knowledge of the facts, setting forth briefly but completely all essential details.

Names of persons or firms will be held as confidential, instances or cases being referred to in published papers only by letter or number; but it would be obviously improper to found any report upon an anonymous communication.

As an illustration of the nature of the complaints that may be expected to come forward the following are given:

Complaints against inspectors who extol the goods of one manufacturer and decry those of others. It is said that this evil is especially prevalent in the biological field.

Complaints of instances where business has been solicited accompanied with the delicate suggestion that the solicitor's brother or other near kin was an inspector or agent. It is said that this has actually occurred, the business solicited being that of insurance.

An inspector operating under the Harrison Act is known to have inspected druggist's files and immediately to have solicited the druggist's order for a line of specialties that he represented. The druggist felt compelled to buy. The matter was reported to the Commissioner of Internal Revenue by a pharmaceutical manufacturer, who was assured in reply that revenue agents would be informed that they could not engage in other business while working for the government.

A case has come to the attention of the Committee where an inspector under the Federal Food and Drugs Act took samples from a druggist for examination, as the law provides, and volunteered the opinion to the druggist that the particular product involved did not comply with the law. This was misfeasance on the part of the inspector under the rulings of the Department.

The Committee also desires instances with particulars where the law has been oppressively administered.

Those interested are urged that it is better to have too much material than too little. It is comparatively easy for the Committee to cull out what is not available.

In short, the Committee desires to hear from every person who thinks he has a grievance. If the grievance is real an effort will be made at least to prevent a recurrence. If it is not real a suitable explanation will be made.

The Committee especially desires information of citations and prosecutions based upon erroneous calculations, etc., in official analyses. For example, five druggists in as many different parts of an eastern state were cited to appear on account of alleged sub-standard tinctures sold by them based upon analyses of samples containing but about 85 Cc. instead of 100 Cc. The chemist of one of the pharmaceutical manufacturers represented in the Conference through the Association was able to point out that the official chemist had failed to remember the quantity he was examining and made his derogatory report because he did not find in 85 Cc. what should be found in 100 Cc.

The Committee desires not only to receive complaints but also suggestions as to the scope of its inquiry and methods likely to be effective if taken by the Conference.

It will be appreciated that after the Committee has received all reports possible it will take time to digest and classify them in a form suitable for passing on to the Conference and subsequent publication if the Conference thinks it desirable.

Examples of what are believed to be erroneous ruling or interpretations of the various food and drug laws, with explanations as to how they affect pharmaceutical interests are especially solicited.

The Committee desires to hear from YOU, whether you get the above in the shape of a circular addressed to you personally or whether you learn of it through your pharmaceutical journal or otherwise.

Please address all communications:

Secretary National Drug Trade Conference,
850 Penobscot Building,
Detroit, Michigan.

and mark "For Committee on Interpretation" in the lower left-hand corner of the envelope.

August 21, 1916.

The President: You have heard the report. What is your pleasure?

O. F. Claus: I move it be received.

(This motion was duly seconded and carried.)

W. C. Anderson: I move the recommendation be adopted.

This motion was seconded by Thos. F. Main and on vote was carried.

The Secretary: The resolutions referred by the House of Delegates have come through the Council and were adopted, as I understand it, in the Council minutes.

The President: Are there any further resolutions from the sections?

The Secretary: Mr. Hancock spoke to me before the afternoon session, saying that he had a matter concerning the Procter memorial and an old certificate of membership in the Association that he wished to present. He is not here.

Caswell A. Mayo: I wish to offer the following resolutions:

RESOLUTIONS OF THANKS.

Resolved, That the thanks of the American Pharmaceutical Association be extended to Local Secretary Charles Holzhauer for the foresight, the executive capacity and untiring industry shown by him in perfecting the arrangements for the transaction of the business of the Association and for the entertainment of the members at this meeting.

Resolved, That the thanks of the Association be extended to the New Jersey Pharmaceutical Association and the members of the New York and Philadelphia Branches of the Association for their liberal contributions to the fund for the entertainment of the members at the Atlantic City meeting.

Resolved, That the thanks of the Association be extended to the ladies and to all the members of the local committee.

Resolved, That the thanks of the Association be extended to the management of the Hotel Chalfonte for the courteous and satisfactory services extended to the members and the Association during its sessions here.

Resolved, That the General Secretary be instructed to convey the foregoing resolutions of thanks to the persons named therein.

These resolutions were adopted.

The President: I appoint Thomas F. Main and William C. Anderson a committee to conduct the elected officers to the chair for installation.

The Secretary: The only officer-elect present, who has not heretofore been installed is Vice-President Leonard E. Seltzer.

The committee presented Mr. Seltzer to the President, who received and installed him. Mr. Seltzer replied briefly, expressing his appreciation of the honor conferred.

The President: Is there any further business to come before the Association?

The Secretary: I have none.

William C. Anderson moved to adjourn, Thomas F. Main seconded the motion by adding, at the call of the chair.

The amendment was accepted and the motion adopted.

SCIENTIFIC SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

MULTIPLE OPERATING TABLE COMBINED WITH KYMOGRAPH CASE FOR BLOOD-PRESSURE EXPERIMENTS.*

BY PAUL S. PITTENGER, PHAR.D.

The ever increasing number of routine samples sent to the laboratory for physiologic test has made it necessary to increase the efficiency of our apparatus to economize in time and space and prevent routine from interfering with experimental or research work.

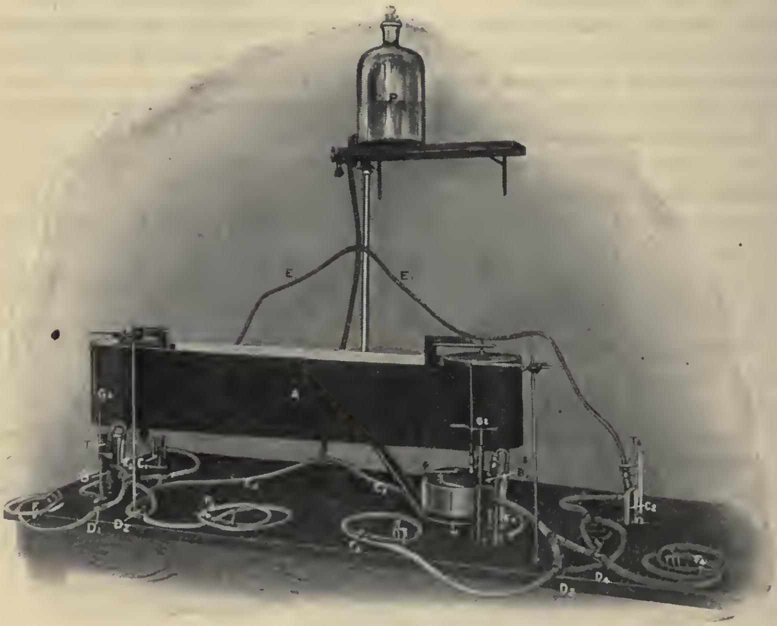

FIG. 1.—Kymograph arranged for making blood-pressure tests on four animals at one time. A, long paper kymograph; B1 and B2, manometers, with writing points; G1 and G2, writing points; C1 and C2, dummy manometers, without writing points; D1, D2, D3 and D4, three-way stop-cocks; E1, tubes used for securing pressure in manometers C1 and C2, from pressure bottle P; E2, tubes used for securing pressure in dummy manometers, B1 and B2; F1, F2, F3 and F4, cannulæ; H1, H2, H3 and H4, connecting tubes; T1, T2, T3 and T4, stop-cocks.

In a previously published paper,[1] I described an apparatus with which it is possible for one person to carry out blood-pressure tests on four animals at the same time and record all the tracings on one kymograph. This improved kymograph finds its greatest value in blood-pressure tests which, of all the physiologic methods, consume the greatest amount of time. This is true particularly in the blood-pressure test for ergot in which it is necessary to check the results on two or three dogs and, on account of cumulative action, to allow one to one and a half hours to elapse between injections. With the usual method, using one manometer and kymograph, it is possible to work with only one animal at a time, requiring the greater part of two days to assay one sample of ergot in duplicate. Frequently, four or five samples of ergot are submitted in one lot for test and eight to ten days would be required.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

[1] "An Improved Form of Kymograph," J. A. PH. A., December, 1913.

This difficulty is overcome by the use of the improved kymograph shown in Figs. 1 and 2. The animals are anæsthetized and the carotid arteries and saphenous veins are exposed. A cannula (F1, F2, F3 and F4) is then tied into the carotid artery of each dog. Pressure is obtained within the various tubes from the pressure bottle (P) by opening the cocks (T1, T2, T3 and T4) (T2 invisible). It will be noted from Fig. 1 that each connecting tube (H1, H2, H3 and H4) terminates in a three-way stop-cock which enables the operator to connect it with either a manometer which writes on the smoked drum, or with a "dummy" manometer.

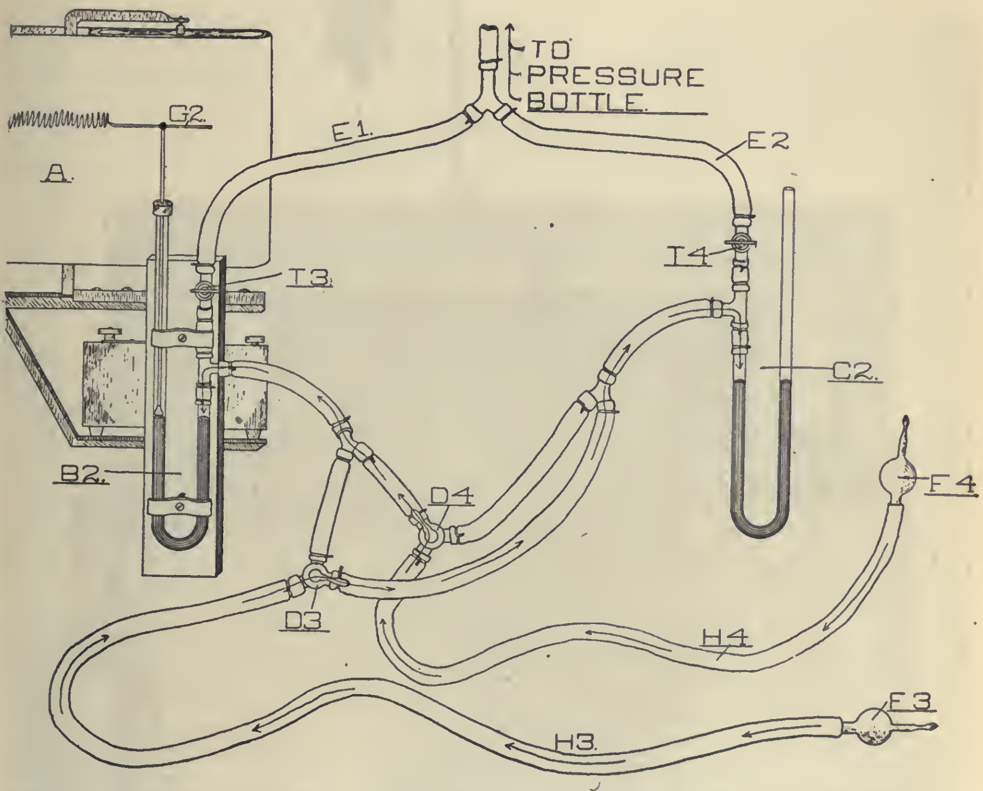

FIG. 2.—A graphic illustration of the arrangement of one-half of the apparatus. The letters and figures used in this illustration correspond to those used in Fig. 1.

To assay two samples of ergot, two dogs are placed on one end of the kymograph for one sample and two on the other end for the other sample. The three-way stop-cocks are arranged in such a manner that one dog on each end records its pulsations upon the revolving drum, while the other pulsates against a "dummy" manometer. Inject the proper dose of fluidextract of ergot into the dog which is recording its blood-pressure on the right-hand side of the kymograph; allow the drum to revolve five, ten and fifteen minutes after the injection. Then by merely reversing the stop-cocks (D3 and D4), the dogs can be interchanged, or, in other words, the dog which was recording its blood-pressure on the smoked drum will pulsate against the mercury in the "dummy" manometer, and the one which was previously pulsating against the "dummy" will record its

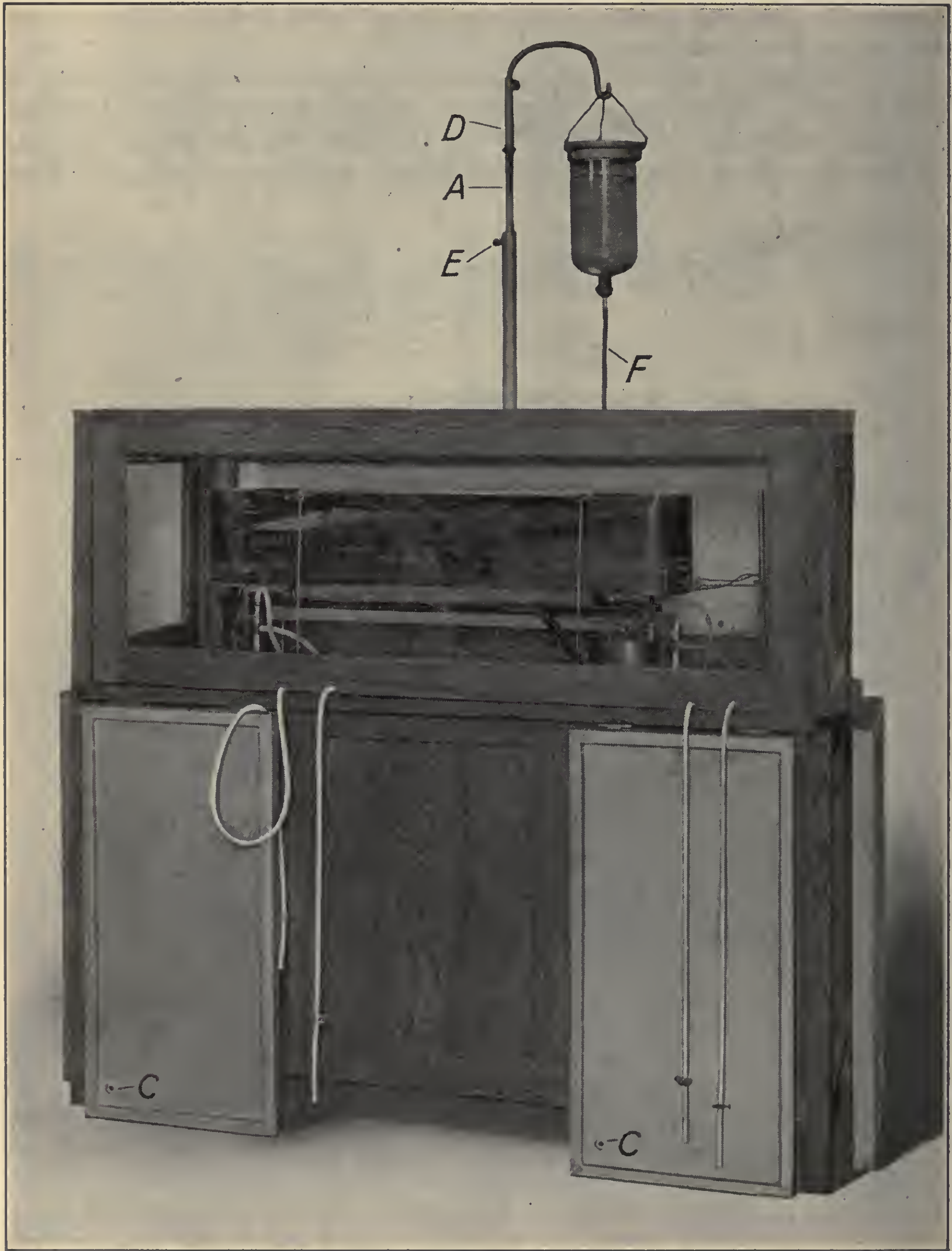

Fig. 3.—Multiple operating table combined with kymograph case (closed).

normal blood-pressure upon the smoked drum. After taking a normal tracing of several inches in length, stop the drum; then check the former results by injecting this dog with the same preparation given to dog No. 1; again, take tracing five, ten and fifteen minutes after the injection. Repeat operation by injecting, in a similar manner, the other sample into the dogs on the left-hand side of the drum. This will consume about one hour and fifteen minutes. It is then necessary to wait only about fifteen minutes or until the one and a half hours have elapsed since the first injection was given when the entire procedure can be repeated. This is continued until each dog has received three or four injections. The charts are then measured and the average rise of pressure produced by each preparation is taken as its figure of potency.

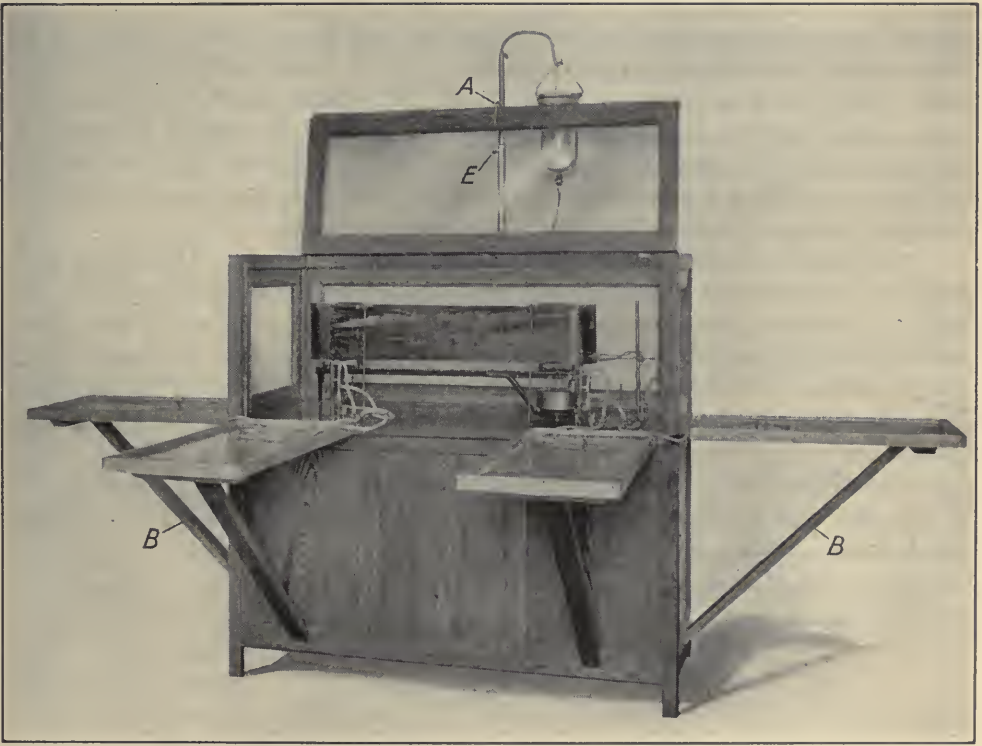

FIG. 4.—Multiple operating table combined with kymograph case (open).

To assay one sample of ergot in duplicate and one sample of adrenal extract it is necessary to employ only three animals, two on the one end for ergot and one on the other end for adrenal extract.

We found that the advantages of the improved kymograph were partially offset by the waste of time spent dusting and cleaning the apparatus due to the delicate construction of the manometer, etc. The apparatus also required the use of four individual operating tables, which, when not in use, occupied a considerable amount of valuable laboratory space. It was thought advisable, therefore, to build some sort of case to protect the apparatus from dust and thus reduce the time and attention necessary to keep it clean and to combine with such a case folding or collapsible operating tables which would occupy a minimum amount of space when not in use.

The apparatus described below was devised with these requirements in view. It has been in use in our laboratory for some time and has proven itself invaluable for conserving both time and laboratory space.

Figs. 3 and 4 are self-explanatory and make it unnecessary to describe the apparatus in detail. It will be noted that the kymograph is covered with a glass case, the two ends and back of which are stationary while the top and front are hinged in such a manner that the case may be opened or closed by raising or lowering the top. While the apparatus is in use the case is held open by means of the hook *A*. The zinc-covered operating boards are hinged like "table leaves" to the kymograph case—two at the front and one at each end. When in use these leaves are supported by means of the props *B*, in which position they make four convenient good-sized operating tables. The hind leg of the animal used when giving injections into the saphenous vein, is held in position by means of an iron rod, which passes through hole *C*, and is secured by a nut screwed to the end of the rod underneath the table. These rods have a series of holes for tying the leg at various angles.

The pressure bottle is supported by a sliding iron rod, *D*. This rod may be raised or lowered and is held at any level desired by the thumb screw *E*. The tube, *F*, from the pressure bottle is connected with brass pipes which run underneath the table to each of the four manometers. A pinch-cock placed at the end of this tube shuts off the pressure from the bottle when the apparatus is not in use, and prevents the magnesium sulphate solution from leaking and crystallizing around the stop-cocks and connections of the manometers.

The back of the enclosed table which supports the kymograph case is provided with two doors and makes an excellent place in which to store kymograph paper, smoker, smoking stand, etc.

PHARMACODYNAMIC LABORATORY, H. K. MULFORD COMPANY.

THE VARIABILITY OF STROPHANTHIN WITH PARTICULAR REFERENCE TO OUABAIN.*

BY L. W. ROWE, DETROIT, MICHIGAN.

The importance of Strophanthus in therapeutics has led to much original investigation of its activity both chemical and physiological. Although it has been many years since Fraser[1] first obtained an active principle from strophanthus seed which he called Strophanthin, the preparation of a chemically pure Strophanthin, *i.e.,* one of constant chemical and physiological properties, has not been consistently accomplished. It is true that Fraser's method has been improved and new methods worked out by which a more active strophanthin has been obtained but commercial preparations from the same kind of seed still show a surprising lack of uniformity in physiological activity and in chemical purity as well.[3] A large part of this variability can no doubt be attributed to the difficulty encountered in obtaining seed of one particular kind. It is now known that there are more than 20 different species of Strophanthus Seed on the market[2] and it is a relatively common occurrence to find upon close examination that a given lot of seed purchased as *Kombe* contains some seed of other varieties.

There are only three different strophanthins (*Kombe-strophanthin, hispidus-strophanthin* and *gratus-strophanthin* or *ouabain*) of which any chemistry or pharmacology is known and these differ considerably in the degree of their physiological activity. Consequently, if the strophanthin is not obtained from seeds of the same species, its activity will be greater or less than the average for that kind of seed.

Another reason for the variability of strophanthin lies in the fact that some species of seed such as *Kombe* contain a crystalline and an amorphous acid strophanthin which are closely related but which differ markedly in quantitative physiological activity. If the product is very carefully crystallized and labeled "Crystalline Strophanthin," this cause of non-uniformity should disappear, but it is sometimes difficult to obtain a definite separation of the crystalline from the amorphous variety.

The chemistry and pharmacology of the strophanthins derived from *Strophanthus Kombe* have been carefully studied, but Ouabain, the strophanthin from *Strophanthus Gratus,* which seems to be identical with the Ouabain from some species of *Acocanthera,* has not been so thoroughly investigated. It is known to be a nicely crystalline body which may contain variable amounts of water of crystallization, but, since it does not yield a crystalline strophanthidin as *Kombe strophanthin* does, the study of its chemistry is under a disadvantage and the identity of the glucoside is to that extent uncertain. The fact that different samples of Ouabain may contain variable amounts of water of crystallization is a source of serious disagreement in the activity of various samples.

In the quantitative testing of heart tonics of the digitalis series such as Digitalis, Strophanthus, and Squill, physiological methods have been found to be the most feasible. A number of methods have been proposed but most of them agree on one thing, namely, that the frog is best suited for use as the test animal. The new Pharmacopœia (ninth revision) recommends that heart tonics be assayed by the use of one of these frog methods, the "One-Hour Method."[6] This method consists in brief of determining the smallest dose of the heart tonic preparation per unit of weight of the test animal which will just stop the heart of a frog in systole one hour after the dose is administered and is, therefore, the minimum systolic dose per gram weight of frog for one hour. This dose must be compared with that of a standard preparation to be tested at the same time in order to take into consideration the variation in resistance of the frogs from season to season and to a lesser degree from day to day.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

The standard recommended for use is Ouabain, the strophanthin obtained from *Strophanthus Gratus.* In the selection of a standard, the chief considerations should be the purity of the preparation, its stability, its universal availability and its qualitative and quantitative activity. It is true that Ouabain is a crystalline compound, a fact which should point to its purity and stability. However, different samples contain variable amounts of water of crystallization so that the activity is not uniform. Even *Kombe Strophanthin,* which has been more thoroughly studied chemically and which seems to be a constant chemical compound, is not found to be of uniform physiological activity when various samples on the market are purchased and tested. The following tests of samples of *Kombe Strophanthin* made during the last few years serve to show the variable activity of the commercial preparation.

TABLE I.

	Date	M. F. D. Sample	M. F. D. Std.	Activity Percent of Std.
(1)	May 8, 1906	.00000050	.00016	192
(2)	November 10, 1906	.00000040	.00016	240
(3)	February 22, 1907	.00000045	.00013	173
(4)	April 4, 1907	.00000050	.00015	180
(5)	May 18, 1907	.00000060	.00016	160
(6)	July 7, 1907	.00000050	.00016	192
(7)	June 10, 1908	.00000050	.00015	180
(8)	October 9, 1909	.00000070	.00011	94
(9)	July 18, 1911	.00000040	.00009	135
(10)	December 7, 1911	.00000100	.00013	78
(11)	December 11, 1911	.00000100	.00013	78
(12)	January 16, 1912	.00000086	.00010	67
(13)	January 13, 1913	.00000055	.00011	120
(14)	October 8, 1913	.00000045	.00011	145
(15)	April 10, 1914	.00000065	.00011	102
(16)	August 21, 1914	.00000055	.00011	120
(17)	September 25, 1914	.00000070	.00011	93
(18)	April 28, 1915	.00000055	.00011	120
(19)	June 15, 1915	.00000060	.00012	120
(20)	October 9, 1915	.00000075	.00012	96
(21)	March 4, 1916	.00000055	.00010	110
(22)	August 8, 1916	.00000055	.00010	110

From this table it can be seen that the least active sample was 67 percent of standard while the most active was 240 percent or approximately 3.5 times as active. The ten samples tested since January 1, 1913, have shown a much greater degree of uniformity in activity. In this later period the most active sample was but 1.5 times as strong as the least active sample. It has also been shown experimentally that a crystalline Strophanthin can be prepared from *Kombe* seed (the official drug) which is constant in chemical composition and physiological activity.[3] In order to do this, great care must be exercised in the selection of the seed and in following a definite method of preparation and purification.*

The facts favoring the selection of Ouabain as a standard for the testing of heart tonics of the digitalis series might be advanced as follows:

First, that Ouabain is the only active principle of *Strophanthus Gratus* whereas the *Kombe* seed contains two or more.

Second, that it is a nicely crystalline body.

Third, that it is the most active strophanthin yet obtained.

Fourth, that its absorption is comparatively rapid with very slight if any tendency to cumulative action.

These advantages appear to be more than offset by the disadvantages previously mentioned such as the variable content of water of crystallization and the consequent variation in physiological activity of samples of Ouabain, and the fact that its chemistry and pharmacology have not been so thoroughly investigated as has that of *Kombe Strophanthin.* The fact that *Kombe* seed rather than *Gratus* seed is official should make the crystalline *Kombe Strophanthin* the logical choice as a standard. The greater activity of Ouabain can scarcely be considered of any advantage and the *Kombe Strophanthin* is readily absorbed, even though not quite so rapidly as Ouabain. In fact the greater toxicity of Ouabain may be due in part to the greater rapidity with which it is absorbed.

In order to determine whether the physiological activity of Ouabain varies, three samples were purchased at different times and submitted to physiological assay. These assays were made by two methods and at several different times. The following table shows the results obtained in the various tests of these three samples of Ouabain.

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* *Method of Preparation.*—1.5 Kg. ground, fat-free Strophanthus Seed was percolated with 12 liters 70 percent alcohol and the percolate was distilled off in *vacuo* until about 1 liter fluid remained. To this fluid sufficient lead subacetate solution (Liquor plumbi subacetatis, U. S. P.) was added, to obtain an easily filtering mixture. The filtrate is a clear yellow fluid. The excess of lead was removed by hydrogen sulphide and the clear filtrate was evaporated at 40°–45° with constant stirring. Until the fluid becomes concentrated it is important that it be kept alcoholic by frequent addition of a little alcohol. When the fluid has become a thin extract, the alcohol must be evaporated as much as possible. It will then crystallize readily. The crystals are separated on a hardened filter of large surface by suction. The recrystallization is made in the following manner to avoid conversion into the amorphous body: The crystals are dissolved by placing them in a dish with a small amount of 9 percent alcohol and heating to 40°–45° and stirring occasionally. After having filtered the solution, the alcohol is now evaporated to a thick extract at this temperature and water is added until a thin extract is obtained. With constant slow stirring with a motor, the extract is again evaporated to remove the rest of the alcohol. The extract will then crystallize readily.

Crystalline strophanthin as we have shown can be obtained without any chemical purification from the alcoholic extract. It is thus possible to determine whether a certain chemical method of preparation of strophanthin from Strophanthus Kombe seed, gives a yield of naturally occurring crystalline strophanthin or of a derivative of strophanthin.[3]

TABLE II.

TESTS OF THREE SAMPLES OF OUABAIN BY TWO METHODS.

M.L.D. METHOD.

SAMPLE "A," 1 OZ.

M.L.D.	.00000045	June 21, 1915.
	(Std. .00013)	
M.L.D.	.00000035	April 29, 1916.
	(Std. .00011)	
M.L.D.	.00000030	August 21, 1916.
	(Std. .00011)	
Aver.	215500 H.T.U. per Gm.	

ONE-HOUR METHOD.

SAMPLE "A," 1 OZ.

M.S.D.	.00000080	June 21, 1915.
M.S.D.	.00000080	February 15, 1916.
M.S.D.	.00000080	March 3, 1916.
M.S.D.	.00000110	April 12, 1916.
M.S.D.	.00000080	May 4, 1916.
M.S.D.	.00000090	May 9, 1916.
M.S.D.	.00000090	May 9, 1916.
M.S.D.	.00000080	August 16, 1916.
Aver. M.S.D.	.00000086	

M.L.D. METHOD.

SAMPLE "B," 5 GM.

M.L.D.	.00000045	June 21, 1915.
	(Std. .00013)	
M.L.D.	.00000045	August 25, 1916.
	(Std. .00012)	
Aver.	185200 H.T.U. per Gm.	

ONE-HOUR METHOD.

SAMPLE "B," 5 GM.

M.S.D.	.00000065	June 21, 1915.
M.S.D.	.00000080	February 15, 1916
M.S.D.	.00000090	August 21, 1916.
M.S.D.	.00000080	August 16, 1916.
Aver. M.S.D.	.000000787	

M.L.D. METHOD.

SAMPLE "C."

M.L.D.	.00000040	April 22, 1916.
	(Std. .00011)	
M.L.D.	.00000035	April 29, 1916.
	(Std. .00011)	
M.L.D.	.00000040	August 25, 1916
	(Std. .00012)	
Aver.	197600 H.T.U. per Gm.	

ONE-HOUR METHOD.

SAMPLE "C."

M.S.D.	.0000010	April 7, 1916.
M.S.D.	.0000009	March 21, 1916
M.S.D.	.0000010	May 4, 1916.
M.S.D.	.0000010	May 9, 1916.
M.S.D.	.0000008	August 22, 1916.
Aver. M.S.D.	.00000094	

From this table it can be seen first, that the three samples are more nearly uniform when tested by the "M.L.D. method"[7] than when tested by the "one-hour method," and, second, that the average M.S.D. for any of the samples is much larger than that chosen as the standard for the "one-hour method" by the Pharmacopœial Revision Committee.

In order to bring out these points more clearly, the results should be considered from a number of viewpoints. By the "M.L.D. method" the variation in activity in the three samples is 14 percent, while the average activity of the three is almost exactly double that of the average *Kombe Strophanthin.* However, by the "one-hour method," which is the method officially recommended, the variation in activity in the three samples is somewhat greater but the greatest discrepancy is the variation of each of the samples from average M.S.D. (.00000050 Gm. per Gm. wt. of frog) which is officially proposed for comparison. Since the M.S.D. of these three samples was determined in the different seasons and an average taken and since in no test was the dose found to be as small as that mentioned in the Pharmacopœia as being standard for Ouabain, it is very evident that all of these samples of Ouabain are considerably below standard. In fact, sample "C" which was expressly obtained for use as a standard is but 53 percent as active as it should be. Sample "B" which was the most active according to the "one-hour method" was only 63 percent as active as the standard proposed.

It is difficult to believe that three different samples obtained at different times from reliable sources should have an M.S.D. so much greater than the average proposed by the revision committee. The three samples were assayed so many times in different seasons and with such universally high results that any experimental error must have been eliminated. It seems quite probable therefore that the M.S.D. chosen by the committee is smaller than it should be since it is generally admitted that Ouabain is approximately twice as active as crystalline *Kombe Strophanthin*[4,5] and the M.S.D. of the latter preparation has been found experimentally to be approximately .0000015 Gm. per Gm. wt. of frog. The logical deduction from the foregoing data is that the average M.S.D. of active Ouabain is about .00000075 Gm. per Gm. body weight which is approximately the average found in our work.

From the data submitted it seems reasonable to conclude that the variation in activity of different samples of Ouabain is too great to admit of its use as a satisfactory standard in the testing of heart tonic preparations by the "one-hour method" and that the average minimum systolic dose obtained in a number of assays of three different samples is much larger than that proposed by the committee.

BIBLIOGRAPHY.

[1] Fraser: The Pharmaceutical Jour. and Trans., 1873, iii, p. 523.
[2] Blondel: Jour. de Pharm. et de Chem., 1888, i, p. 297.
[3] Brauns and Clossen: Jour. of the Amer. Pharm. Assoc., May, June and July, 1913.
[4] Gley: Comptes Rendus, cvii, p. 348.
[5] Thomas: Pharm. Zeit., lii, p. 699.
[6] Famulener and Lyons: Proc. Am. Pharm. Assoc., 1902, 1, 415.
[7] Houghton: Jour. Am. Med. Assoc., 1898, xxxi, 959.

Research Laboratory, Parke Davis & Co., Detroit, Mich.

A CRITICISM OF THE BIOLOGIC METHODS FOR THE STANDARDIZATION OF DIGITALIS WITH A SUGGESTION FOR A NEW METHOD.*

BY W. H. ZEIGLER.†

I. INTRODUCTION. II. BIOLOGIC METHODS. III. CRITICISMS. IV. SUGGESTED METHOD. V. SUMMARY.

I. INTRODUCTION.

Since Withering in 1776 suggested the use of the purple foxglove as a diuretic, and Barton in 1798 determined that it slowed the action of the heart, this drug has been the subject of more investigation than any other of the Pharmacopœia. Strange to say, although volumes have been written, chemists, physiologists and pharmacologists the world over are still seeking some simple and accurate method for its standardization, and while we acknowledge that a great deal has been accomplished, we are nevertheless confronted with the fact that the preparations found upon the market to-day show as great a variance in toxicity when tested by biologic methods as they did when Pratt in 1910 announced, after the examination of a number of preparations tested by one of the frog methods, that he found a variation of as much as three hundred percent. Since this statement a number of careful investigators have reported the startling fact that we may have preparations of this drug that are either too active or worthless. When we pause and consider the importance of this drug as a clinical remedy in heart diseases we are struck with this alarming result.

The question that naturally arises then is, what is the cause of this variance in activity and what is the best remedy for it? Is it due to a lack of standardization, or standardization without a uniform method? Is it due to a poor drug supply, carelessness in storing or adulteration, or is it due to the rapid deterioration of the finished preparation? A great deal of work has been done along this line, but I believe we will agree, that while the percentage of the active principles may vary in the leaf and be affected by temperature and light, that if a uniform method was used for the standardization of the finished preparation and this preparation protected from light and temperature it would not show a variance in several years. Roth [4] in a series of tests found that fat-free digitalis deteriorated when kept under ordinary conditions in from five to seven months, and Branson and Sharp,[7] that the alcoholic content would influence its keeping qualities. With these facts in view, then, I believe the solution of the problem for a trustworthy preparation of digitalis would be the provision of a uniform method of standardization and a time limit on all official preparations.

II. BIOLOGIC METHODS.

This leads up to the consideration of the methods employed to-day for the standardization of this valuable drug. I believe we will all agree that digitalis cannot be standardized by chemical means and that a biologic test for its activity is the only way to determine its value. It is then only a question of the best method, and the compulsory adoption of that method to the exclusion of all others. The various methods used for the standardization of the heart tonics are too well known to enumerate. I shall only mention those generally employed, and criticise, from a pharmacological standpoint, what I consider to be their weak points.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

† Professor of Pharmacology, Medical College of the State of South Carolina.

As we all know, there are several frog methods, all of them based principally on the time it takes to produce standstill of the heart when injected into a lymph-sac. The principal differences in these methods are the time limits and the solution injected. Reed and Vanderkleed's guinea-pig and Hatcher and Brody's cat method both depend upon the toxicity of the drug, or the amount that will prove fatal when injected either subcutaneously or intravenously. Recently we have had suggested another toxic method by Pittenger and Vanderkleed[1] in which goldfish are used. The value of the preparation is determined by the time it takes to produce death of the fish when a preparation of the drug is added to water.

III. CRITICISMS.

After a close analysis of these various methods one is struck first of all with the fact that the potency of the drug is determined by its power to kill or to produce standstill of the frog's heart without taking into account the therapeutic value at all; in the second place, that a drug so poorly absorbed should be injected subcutaneously; and in the third place, the lack of uniformity in the solvents used for injection. Criticisms of the frog methods are that the various species react differently to the drug. The U. S. P. IX recommends the "one hour frog method" for the the Digitalis Group. The animals are subject to climatic conditions and even in the laboratory must be kept at an even temperature during the process of assay. The drug being injected into the lymph-sac may be absorbed with varying rapidity. Roth[4] in a series of experiments reports that temperature effects a marked influence on the toxicity of certain digitalis principles in the frog. (If this be true then a time limit should not be considered an accurate measure of the activity of the drug.) The solvent should play an important part. It may be well to recall that the activity of this drug is due chiefly to three glucosidal principles, digitoxin, digitalin and digitalein, the first mentioned being almost insoluble in water but freely soluble in alcohol. Digitalin is only slightly soluble in water and soluble in alcohol. Digitalein is freely soluble in water. Digitalis also contains another substance, a saponin body, soluble in water but not in alcohol. We are told that this principle makes the other principles, for which the drug is used, soluble in water.

In one of the methods a ten percent infusion of the drug is employed. This preparation should contain all of the principles, but would certainly contain more of the digitonin and less, if any, of the digitoxin. The tincture, preparatory to assay, is usually evaporated on a water bath until at least half of the alcohol is dispelled. Unless this evaporation is carefully carried on the principles, being glucosides, may be partly if not all destroyed.

In spite of the fact then that there is a great difference in the solubility of these principles, we find in the directions for the solutions to be injected, that if a tincture or a fluidextract is to be tested "the greater part of the alcohol" should be evaporated without stating the actual percent. I have never seen published a chemical assay of the amount of digitoxin found in such a solution, but it stands to reason that both digitoxin and digitalin will be thrown out of solution if "the greater part of the alcohol" is evaporated. In the "one hour method" it is recommended that the animal be first tested for susceptibility with a solution of ouabain; although this may be done, still there is an uncertainty as to whether the solution of the digitalis bodies when injected into the lymph-sac will be absorbed with the same degree of rapidity.

My criticisms of the methods in which warm-blooded animals are used are based upon the fact that the amount of alcohol in the solution is not taken into account and that the solution is injected subcutaneously. Haskell[2] found in a series of experiments that alcohol reduced the toxicity of this drug for guinea-pigs and rabbits. The amount of alcohol would influence the quantity of digitoxin and digitalin. Digitoxin causes a vasoconstrictive action and lessens absorption at the place of injection. In this way we would have prolongation of the toxic effect. This method is also an expensive one if guinea-pigs are used, and if the cat method is employed a knowledge of the technic of pharmacodynamics is absolutely necessary.

A criticism of the fish method is that the amount of digitonin in the preparation would influence very materially the toxic effect, it being a well known fact that all saponin bodies have a very toxic effect upon fish. Sollmann[3] says the powerful toxic action of both the sapotoxins and the saponins on fish is due to the rapid absorption of these principles through the gills. Its toxicity then would not show a true digitalis action, but the amount of digitonin present.

I might add that from my observations of the last two or three years in the study of this particular drug, I am convinced that the preparations on the market would not show the variations, as reported, if first of all a uniform method was adopted, the same solvent used, and this method took into consideration the therapeutic effect as well as the toxic value, the standardized preparation being put up in ampoules of doses or in 15 and 30 mil quantities.

It is very evident from the criticisms just enumerated that a slight retardation in absorption, a difference in the amount of the solvent, a difference in the species of animals, or a slight variation in temperature would make a great difference in the time it takes to produce death in the animal.

Against these criticisms of the toxic methods, the argument is advanced that this method is intended as a means of obtaining uniform preparations and not necessarily as a means of proving the therapeutic value. I believe every biologic assay should take into consideration the therapeutic action of the drug, and especially of a drug that is known to contain more than one principle, and when these principles differ in solubility as well as in physiological activity.

IV. SUGGESTED METHOD.

It was with these facts in view that the author three years ago undertook the study biologically of digitalis and its preparations. This investigation led finally to the use of a species of fresh water terrapin or turtle. While there are a number of varieties of this family of *Chelonea,* I have used at least three of the most common ones and find the species whose plastron has two lids, known as Blanding's turtle, the *Emys blandingii,* the most suitable for this work.

My object in using this animal is because of its longevity, its immunity to climatic conditions, the ease of procuring it, and the cost which in itself is quite an item, a six-inch animal weighing about 500 Gm. being purchasable from dealers at $1 per dozen.

I have experimented with the heart of this animal as a means for the standardization of digitalis in every method known to pharmacodynamics, including the perfusion of the isolated heart, the suspension of the heart in an oxygenated solution of the drug, a suspension of ventricular strips in an oxygenated solution of the drug, and the suspension method, the drug being applied to the heart in measured quantities per Gm. body weight every three minutes, these methods having to do principally with its action on the heart muscle. After a series of experiments I have found that by the injection of the drug into the left aorta (as shown by the drawing of the turtle's heart), an estimate can be made of its therapeutic as well as its toxic value.

As shown by the record in Fig. 1, made with this method, there is, with active preparations, the digitalis action in which the heart is slowed and with this slowing the chambers are more completely filled and at the same time, by its action on the heart muscle, the contractions being more forcible, more blood is thrown out into the circulation. This is known as the therapeutic stage and is the one that the physician desires.

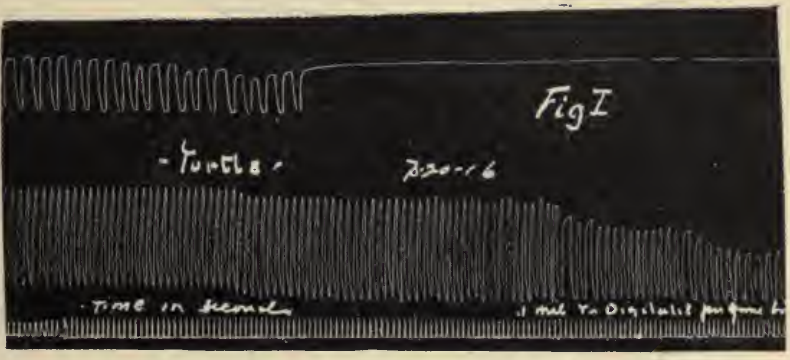

Fig. 1.—Showing the therapeutic as well as the toxic effect of tincture of digitalis, 0.1 mil per Gm. body weight, when injected into the circulation.

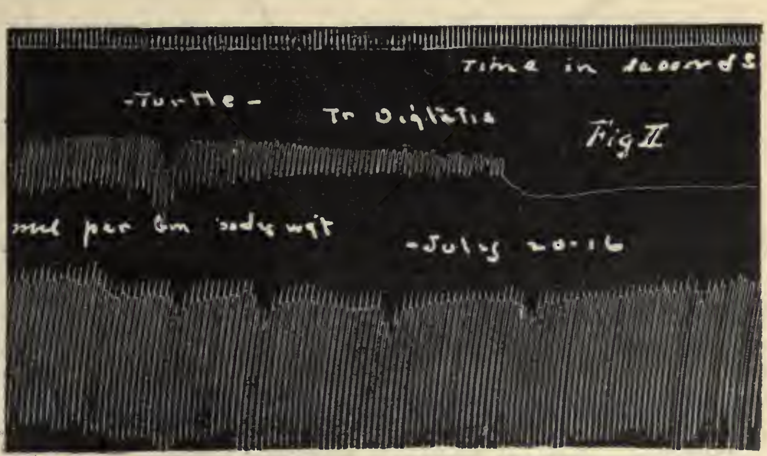

Fig. 2.—Showing the effect of a preparation of tincture of digitalis that is toxic but does not show therapeutic effect, 0.1 mil per Gm. body weight, injected into the circulation.

The method suggested is as follows:

Apparatus—pipette, graduated in hundredths, all-glass syringe or a Hitchen's syringe, kymograph, heart lever, bulldog clamp.

Animal—Terrapin of five hundred Gm. average weight.

Preparation of Solution—Twenty-five percent alcohol, 0.7 percent sodium chloride solution, a sufficient quantity.

Standardization—The turtle is weighed and pithed. The plastron is removed by dissection and the animal tied down. The drug is injected into the right aorta. I have used as a standard the injection of one-tenth of a mil of the solution per Gm.

body weight; this should show the therapeutic effect within three minutes, the heart ceasing to beat, when at least 3 turtles are used, on an average in ten minutes.

Records are made by attaching a string to the apex of the heart. (On account of the peculiar anatomy of the terrapin's heart which is attached at the apex to the pericardium this is easily accomplished). The other end of the string is attached to the heart-lever to record the action on a revolving kymograph. A normal tracing is made. The drug is then injected into the left aorta with a small all-glass hypodermic or a Hitchen's syringe. After the removal of the needle the oozing of the blood is stopped with a bulldog forceps. At the end of from one to three minutes, if the drug is active, a typical digitalis action will be recorded, the heart ceasing to contract on an average in ten minutes.

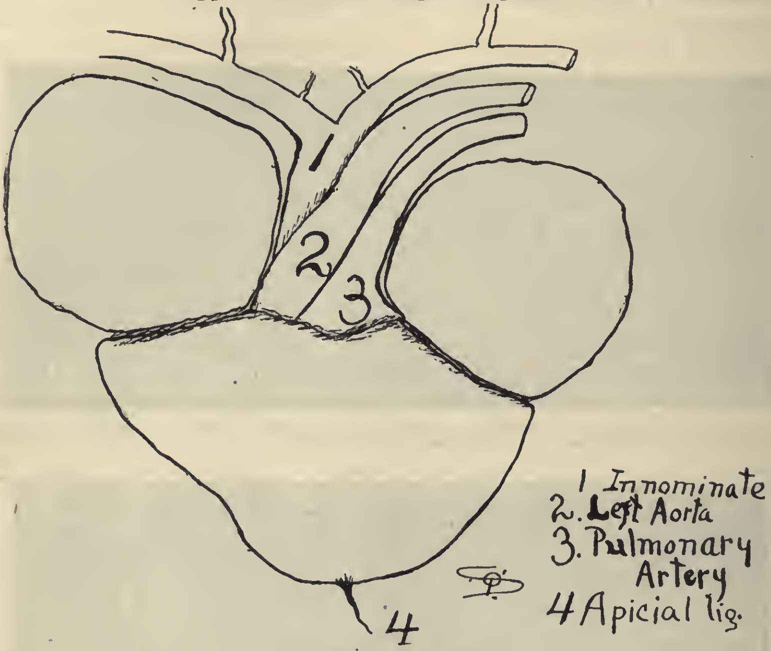

FIG. 3.—Drawing of turtle's heart.

Actual standardization then by this method may consist of both a therapeutic as well as a toxic action. After a number of experiments I have found a 3-minute limit for the therapeutic effect and a 10-minute limit for the toxic effect safe to accept. So that if the preparation being tested takes six minutes to show its therapeutic effect and the standard three minutes, then it is only of 50 percent strength. The preparations *must* show a therapeutic effect. I may add in conclusion that I have tested with this method preparations made with different solvents, and find that the best preparation is one made with about 75 percent alcohol, 50 percent of this being evaporated very carefully and made up with sufficient 0.7 percent sodium chloride solution. Lastly, I may add that while I expect to further investigate and perfect this method, the basis on which I claim that this method deserves consideration is given in the following:

V. SUMMARY.

1. The animal is not subject to climatic conditions.
2. Easily procured and kept.
3. The method is simple.
4. Dose depends upon body weight.

5. A record showing the therapeutic effect may be given with the preparation.
6. It shows whether the drug is active therapeutically or not.
7. If a drug is used for its action on the heart muscle it should be injected into or applied to the heart muscle.

BIBLIOGRAPHY.

[1] Pittenger and Vanderkleed: Journal A. Ph. A., vol. iv, p. 427.
[2] Haskell, Chas. C.: Journal A. Ph. A., vol. ii, p. 836.
[3] Sollmann: Text-book of Pharmacology, p. 513.
[4] Roth: Hygienic Laboratory Bulletin No. 102, 1916.
[5] Stewart: Cyclopedia and Medical Bulletin, January, February and March, 1913.
[6] Pratt: 1910.
[7] Sharp, Gordon and Branson: P. S. London, vol. xcii, p. 131, 1912.

DISCUSSION.

C. E. Vanderkleed: I think Dr. Zeigler is to be congratulated for his contribution to this very interesting subject. Without any doubt the desirability of determining the therapeutic action of a standard is a reasonable one. It is interesting to point out that nearly all chemical drug assays which are accepted to-day are subject to the same criticism made by Dr. Zeigler. When we determine the percentage of morphine in opium, we by no means determine the therapeutic effect of the opium.

Paul S. Pittenger: I would like to ask Dr. Zeigler whether or not any work has been done to prove that turtles do not vary according to season or whether this was just an ordinary laboratory observation?

Before any definite conclusions can be made on this point it is necessary to carry out a series of experiments similar to those we made in determining the variation in susceptibility of guinea-pigs and frogs, namely, to note the variation in the results obtained upon turtles after determining the minimum lethal dose of some standard substance like Ouabain, for example, once a month for one or two years.

I can readily see how the method suggested by Dr. Ziegler might give promising results in determining the qualitative therapeutic effects of digitalis, but before it can be used for quantitative standardization purposes there still remains a lot of work to be done. It will be necessary to prove that the method is sensitive to variations in activity of 8 to 10 percent, as is the case with the methods employed at the present time.

W. H. Zeigler: I would like to say in answer to Dr. Pittenger that this method was suggested to me and I am still working on it and have not completed it altogether. I have been working on turtles, and some of the tests, I think, were made at the University about two summers ago. They did not take into account, though, the injection of the drug into the circulation. It had to do with the application of the drug to the heart every three minutes—a certain amount of the drug applied every three minutes.

I have kept turtles without feeding them a month at a time, and I have worked on them in the summer and in the winter. I am sorry I cannot give you the species of turtle on which I worked. I tried to get that before I left, but I did not expect to present this paper here, and I worked on it up until the day before leaving Charleston in order to finish it up. I tried to get this information at our museum, but the officials had all gone away. The particular point I wish to make is that so important a drug as digitalis should be tested and its principal physiological action shown. If digitalis deteriorates, I think it is high time that we put a limit on the preparation. The physician depends a good deal on this preparation. I have had a doctor tell me that he got no action at all, but that may have been due to a lack of observation and so on. We are still in the dark as far as the actual standardization of methods is concerned that would show whether the drug is therapeutically and physiologically active or not.

THE PHYSIOLOGICAL STANDARDIZATION OF CANNABIS.*

BY W. A. PEARSON, M.D.

The inclusion of Biological Assays in The United States Pharmacopœia IX is an important step in the right direction, the wisdom of the Committee cannot be questioned and in fact deserves a great amount of credit for being progressive.

The physiological standardization of Cannabis is unfortunately the only biological assay that is actually compulsory. The biological standardization of Aconite, Digitalis, Strophanthus, Squill and Suprarenal Gland is optional, as may be seen by consulting the text of the new Pharmacopœia. No biological assay has been even recommended for the standardization of Ergot.

The object of this paper is to give my experience in regard to the difference in the susceptibility of dogs, which fact is recognized in the Pharmacopœia, and also to propose an arbitrary standard.

In the first place, all dogs do not prominently show the three stages of action which have been described in most reliable text-books. Restlessness, muscular incoördination and drowsiness are not even seen in all cases, but the same dog usually develops most prominently a single one of these three characteristic symptoms, providing that the dose is not excessive, when nausea and vomiting may be seen.

In my experience bull terriers develop most prominently muscular incoördination while other dogs have shown a distinct propensity to drowsiness without much muscular incoördination. Other dogs have shown more prominently the stage of excitement with little muscular incoördination and with marked stupor later.

The most susceptible dog I have even seen is a male fox terrier which has been in the employ of the Smith, Kline & French Co. for the last five years. He seems to be just as sensitive to the action of cannabis now as he was five years ago. He weighs 21 pounds and develops marked muscular incoördination when fed 0.6 mil of my standard fluidextact of cannabis. Let me state that I believe my standard fluidextract of cannabis is as active or even more active than the standard used by other men doing this work. Recently Dr. Pittenger and I made physiological tests on the same unknown sample of cannabis and he reported the unknown sample as being 90 percent as strong as his standard and I considered the unknown only 80 percent as strong as my standard.

Every dog that is used for blood-pressure work is first fed my standard sample of cannabis in order to select the most susceptible dogs for the "poison squad" and save for testing cannabis. Very few dogs have been found which would develop noticeable muscular incoördination when fed 0.03 mil of my standard fluidextract of cannabis per kilo weight of dog. In other words the standard set by the new Pharmacopœia seems to be higher than it should be unless other men have found more susceptible dogs than those brought to my laboratory.

Since I have had so much difficulty in obtaining dogs highly susceptible to cannabis I have tried to breed them from my highly susceptible male dog. A female short haired mongrel weighing 26 pounds was bred. This female was not very sensitive to the action of cannabis, as about 0.05 mil per kilo was required to produce noticeable incoördination and even this amount produced proportionally little drowsiness. Four pups were born but only one (a female) which resembled the sire in other ways was very sensitive to the action of cannabis. Unfortunately this young female lost her life in defending her ideas of woman's suffrage or some other subject. The details of the conflict were never made public and are still a secret which her associates have never divulged even to me, their chief counsel.

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* Read before Scientific Section, Atlantic City meeting, A. Ph. A., 1916.

Failing to raise the most promising young female the two other females were bred to the same sire (their father). I now have four young pups three of which are males and of which much is expected. I will try to raise these pups under proper influences and in this way meet the requirements of the new Pharmacopœia.

The fact that cannabis must now be legally standardized physiologically would seem sufficient reason why a standard fluidextract should be prepared similar to the standard antidiphtheritic serum that was prepared by Dr. Anderson and is kept in Washington for the use of all who may wish to test the strength of antidiphtheric serum.

I would suggest that the Committee on Physiological Testing, of which Dr. Houghton is chairman, prepare a composite standard fluidextract of cannabis which has been obtained from several sources and that portions of this standard fluidextract be sent in ampoules to the various laboratories where physiological standardization is done. There is not much question about fluidextract of cannabis retaining its full activity for a number of years possibly till the United States Pharmacopœia X is ready for distribution.

Laboratory of Smith, Kline & French Co.

CARREL'S SOLUTION.

The *California State Journal of Medicine* (November, 1916, 429) states, with reference to this solution, which is now largely used in the European hospitals for the antiseptic treatment of wounds:

" Several inquiries have come to this office for the formula of the antiseptic solution which developed as one of the innumerable by-products of the European War. This solution is generally referred to under the name of Carrel's solution, and is made as follows:

" Dissolve in a large bottle 140 grammes of dry sodium carbonate with 10 liters of sterile water. Add to this 200 grammes of chloride of lime (bleaching powder), and shake well. After half an hour siphon off the clear fluid into another bottle through a cotton plug or filter paper and then add 40 grammes boric acid to the clear fluid."

This solution is simply a solution of boric acid in Solution of Chlorinated Soda (Labarraque's solution) and water. It can be made much more expeditiously by the following formula:

Solution of Chlorinated Soda (U. S. P. IX)....	200 Gm. (practically 50 mils or Cc.)
Sterile Water	800 mils
Boric Acid	4 Gm.

Dissolve. Keep in well-stoppered bottles, in a cool place, protected from the light.

DIAGNOSTIC REAGENTS AND THEIR USES IN THE DIAGNOSIS OF INFECTIOUS DISEASES (*Continued*).*

BY F. E. STEWART, PH.G., M.D., PHAR.D.

As stated in my former paper, the complement-fixation test may be applied to other diseases than syphilis, such, for example, as gonorrhœa, typhoid fever, glanders, contagious abortion, tuberculosis, etc. In fact, gonorrhœa was one of the first infections to be studied by means of the complement-fixation technic, but the results were not generally satisfactory until it was found that the antigen must be polyvalent.

Complement-fixation Test in Gonococcus Infections.—As a rule, the antisheep hemolytic system is employed. Kolmer and Brown[1] have compared the comparative value of the antisheep and antihuman hemolytic systems in the examination of a number of systems, and while it is true that some of the reactions were somewhat stronger and yield slightly better results when the latter were used, the former is considered preferable by the authors.

As already stated, the antigen must be polyvalent, that is, it should be prepared of many different strains of gonococci. Owing to the difficulty of isolating the gonococci and the constant care required in sub-culturing and keeping a large number of strains alive, this antigen is best prepared in large laboratories where the cultures are handled and preserved by specially trained persons.

"The gonococci are well-grown on a salt-free veal agar, neutral in reaction to phenolphthalein, and to which a few drops of sterile hydrocele fluid may be added. After culturing for from twenty-four to forty-eight hours, the growths are washed off with distilled water, and the emulsion is heated in a water-bath for two hours at 56°C. It is then centrifugalized and passed through a Berkefeld filter. A small amount of preservative, as, *e. g.,* 0.1 Cc. of a 1:100 dilution of phenol to each cubic centimeter of antigen, may be added. The antigen is then well preserved in small amounts in ampules that are sealed and heated to 56°C. for half an hour on three successive days. Just before being used the antigen is made isotonic by adding 1 part of a 10 percent salt solution to 9 parts of antigen. I preserve the antigen in ampules containing 1 Cc., and after removing the antigen from the ampule to a large test-tube, add 1 Cc. of 10 percent salt solution, and dilute the whole 1 : 10 with the addition of 8 Cc. of normal salt solution, after which the anticomplementary titration is made."[2]

"*The Test.*—The serums should be fresh and clear, and heated to 56°C. for one-half hour. For each serum use four test-tubes (12 by 1 cm.), arranged in a row. Into each of the first three place the dose of antigen and increasing doses of serum—0.05 Cc., 0.1 Cc., 0.2 Cc.; the fourth tube is the serum control, and into this is placed the maximum dose of serum (0.2 Cc.), but no antigen; 1 Cc. of complement diluted 1:20 is added to each tube. The following *controls* are included:

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916. Continued from September number, p. 983.

[1] Complement Fixation in Gonococcus Infections, by John A. Kolmer and Claude P. Brown. Jour. Infect. Diseases, vol. xv, No. 1, July, 1914, pp. 6–21.

[2] John A. Kolmer: A Practical Text-Book of Infection, Immunity and Specific Therapy.

"1. A positive control with an antigonococcus serum or with the serum of a patient who reacted positively on a former occasion.

"2. A negative control with the serum of a healthy person.

"Both of these controls may be set up with but the maximum dose of serum (0.2 Cc.).

"3. The serum control of each serum is conducted in the fourth tube of each series. At the completion of the test this tube should show complete hemolysis and thereby indicate that the serum was not anticomplementary.

"4. The antigen control at this time includes the dose of antigen and complement.

"5. The hemolytic system control at this time receives the dose of complement.

"6. The corpuscle control receives 1 Cc. of the corpuscle suspension.

"To each tube sufficient saline solution is added to bring the total volume up to about 2 Cc. The tubes are shaken and incubated for one hour at 37° C., when 1½ units of antisheep amboceptor and 1 Cc. of sheep corpuscle suspension are added to each tube except the corpuscle control. The tubes are gently shaken again and reincubated for an hour or longer, depending upon the hemolysis of the controls, after which the results are recorded. This secondary incubation may be omitted and the tubes placed in a refrigerator overnight and the results read the next morning. Under these conditions hemolysis occurs slowly, and according to some workers in this field the reaction becomes more delicate."[3]

The limits of this paper will not permit a more extended reference to the complement-fixation tests. The reader is referred to a "Practical Text-Book of Infection, Immunity and Specific Therapy," by John A. Kolmer, M.D., Dr.P.H., published by W. B. Saunders Company, 1915, for more complete information.

The practical value of the gonococcus complement-fixation test is there recorded, also details concerning the complement-fixation test in glanders, contagious abortion, dourine or horse syphilis, typhoid fever, tuberculosis and echinococcus disease. Reference is also made to the complement-fixation test in the standardization of immune serums, also protein differentiation by complement fixation, under which is described the complement-fixation test for the identification of blood stains, the identification of meats, the identification of bacterial antigens, and, finally, under the head of "complement-fixation test in cancer," reference is made to von Dungern's method which he claimed to yield 90 percent of positive reactions in known cases of cancer.

These tests open up a field of work for the skilled bacteriologist and point to a field in which the pharmacist who has become skilled in that branch of science and practice may look forward to vocational work, profitable in application and also valuable from the viewpoint of professional reputation.

Agglutination Tests.—When a small quantity of immune serum is added to a suspension of the corresponding bacterium the organism becomes agglutinated into clumps and motility is suspended or destroyed. For example, if typhoid-immune serum from an immunized animal or a patient suffering with typhoid fever is added to an emulsion of typhoid bacilli in a test-tube and the mixture placed in an incubator, the bacteria which previously formed a uniform emulsion clump together into little masses, settle at the sides of the test-tube, and gradually fall to the bottom, the fluid becoming almost clear. This phenomenon is assumed to be due to the presence of an antibody in the blood to which the term "*agglutinin*" has been applied, and the reaction is known as "*agglutination.*"

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[3] John A. Kolmer, *ibid.*

Kolmer[4] defines agglutinins as "antibodies that possess the power of causing bacteria, red blood-corpuscles, and some protozoa (trypanosomes) suspended in a fluid to adhere and form clumps." In 1896 this phenomenon was applied practically by Widal and Grunbaum to the diagnosis of typhoid fever. At the present time this test is known as the Gruber-Widal reaction. It has proved of great value, not only in making diagnosis of typhoid fever, but also in other infections. The true nature of the phenomenon of agglutination is unknown. The presence of some salt is necessary for its occurrence. For a time after its discovery the reaction was regarded as strictly specific; that is, typhoid-immune serum would agglutinate only typhoid bacilli and no other. It is now known that immune serum will frequently agglutinate other closely related organisms, although not usually to so high a degree.

Agglutination reaction is employed for several purposes: (1) For the diagnosis of disease, by identifying the bacteria of infection from which the patient is suffering. (2) As an aid to the identification of a micro-organism that has been cultivated from a patient. (3) To aid in determining whether in a case in which more than one micro-organism has been cultivated and the condition at hand is a single or mixed infection. (4) For measuring the immunizing response that a patient is making to his infection, or to artificial immunization by the use of bacterial vaccines, for example.

For the diagnosis of disease agglutination reaction is limited chiefly to typhoid and paratyphoid fevers. It is also used, but is of less value, in diagnosis of cerebrospinal meningitis and bacillary dysentery.

According to Park, a positive reaction is obtained about the seventh or eighth day. "About 20 percent give positive reaction in the first week; about 60 percent in the second week, about 80 percent in the third week; about 90 percent in the fourth week, and about 75 percent in the second month of the disease." Kolmer says, "That in about 90 percent to 95 percent of cases in which repeated examinations are made a positive reaction is to be found at some time during the patient's illness. Also occasionally the reaction appears first during the stage of convalescence, and at times it may even be absent, the diagnosis being confirmed by cultivating typhoid bacilli from the blood. The possibility of a given case reacting strongly one day and weakly or entirely negative a day or so later, has been emphasized. Usually the reaction is strongest during convalescence, remains positive for several weeks and then gradually returns to the normal. Occasionally the reaction remains positive for months, or even years, after an attack of typhoid fever. Many such cases are 'carriers' and harbor the bacilli in the gall-bladder although the person appears to be quite well."[4]

"Positive reactions occasionally occur in other diseases, such for example as acute miliary tuberculosis, malaria, malignant endocarditis, and pneumonia. It is also well to bear in mind the possibility of a patient having been vaccinated against typhoid fever at some early date, with resulting agglutinin formation."[4]

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[4] John A. Kolmer, *ibid.*

Agglutination reaction is also used in the diagnosis of dysentery, although the absence of the reaction does not exclude dysenteric infection.

Two methods may be employed, namely: The microscopic method, and the macroscopic method, the former being the one ordinarily used for diagnosing typhoid fever, and the latter the method of choice in scientific research.

The technic used in the various agglutination tests is very fully described in all of the modern text-books, to which the reader is referred. One of the simplest is that suggested by Dr. John H. Borden, of New York. The outfit is as follows: A, 30 Cc. stock bottle Typhoid Suspension; B, Cc. stock bottle Salt Solution; C, 10 Cc. dropping flask used for dropping Typhoid Suspension; D, 10 Cc. dropping flask used for dropping Salt Solution; E, 6 graduated test-tubes used in making tests; F, 1 accurately graduated pipette; G, 12 small capillary bulbs or tubes to collect the blood serum; H, 1 needle.

Directions.—1. Prick lobe of ear briskly with the needle and collect the blood at small end of the small tube (G) until two-thirds full; hold the bulb in a slanting manner for two minutes, then close the vent hole with the rubber band attached. The point is sealed by the drying of the blood in it. Put aside for one hour to permit the serum to separate from the blood.

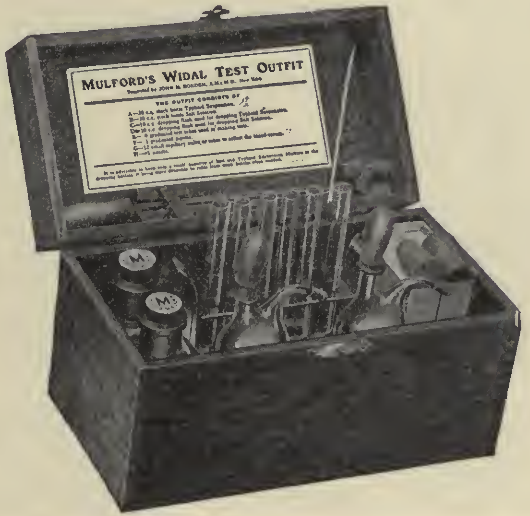

FIG. 1.

2. Half fill one dropping flask (C) from the stock bottle of Typhoid Suspension and the other with salt solution as labeled. Remove the rubber cap at small end of the dropping flask and drop the salt solution into one of the graduated test-tubes up to the mark 1 Cc.

3. File a mark near the large end of the tube containing the blood to be tested, break off this end and carefully draw up through the graduated pipette (F) the serum from the blood tube until 4–100 Cc. is registered, then mix this with the 1 Cc. Salt Solution in test-tube and thoroughly wash out with the Salt Solution. This will make a final dilution of 1–50.

4. Add enough Typhoid Suspension to bring the mixture in the test-tube up to the graduation marked 2 Cc., close mouth of tube with plug of non-absorbent cotton, invert twice to mix, and set aside in a dark place in test-tube rack.

Within one-half hour to twenty hours, if typhoid reaction is positive,[5] depending upon the dilution of the serum used and its agglutinating power, a marked granularity of the fluid in the tube will be noted. Following this there will be seen distinct clumps beginning to sink toward the bottom, and at the conclusion of the reaction the fluid above will be limpid and free from clumps and the point of the test-tube will contain a small, white, flocculent mass of agglutinated bacilli.

The dilutions may be increased or diminished at will of operator. They should never be less than 1.50. Pipette and tubes should be thoroughly cleansed after using, with water, alcohol and ether.

This outfit contains sufficient Typhoid Suspension and Salt Solution to make at least thirty (30) tests. The suspension permanently retains its susceptibility to agglutination if kept from extreme of temperature.

Another simple test has been suggested by Prof. C. C. Bass, of Tulane University, New Orleans, La., and is known as "The Bass Watkins Macroscopic Typhoid Agglutination Test."

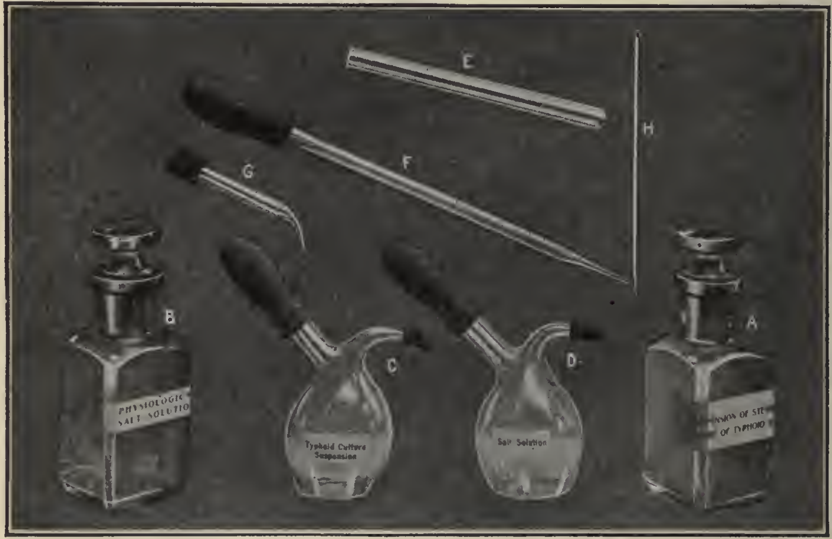

FIG. 2.

Any specimen of blood, wet or dry, fresh or old, may be diluted with approximately four times as much water as original volume of blood appears to have been fresh. One drop of this diluted blood is mixed with one drop of the test fluid (typhoid emulsion) on a slide. The slide is tilted from side to side or end to end so as to mix and agitate the mixture and thereby hasten agglutination.

Still another and more practical way is to make a smear on a slide of approximately one-fourth of a drop of the patient's blood. This quantity (one-fourth drop) is welled up by squeezing the ear or finger after pricking with a surgical needle or other instrument. Sufficient blood is taken up by touching the spot with a microscopic slide. The blood is then spread out on the slide with the end of another slide furnished for that purpose.

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[5] Should the reaction be negative, a stronger solution may be used if it is advisable to duplicate the test.

The blood is dissolved by adding one drop of water, which makes the dilution approximately 1 to 5. The second slide may again be used, so as to thoroughly dissolve the specimen with the water. After the blood has been thoroughly dissolved, one drop of typhoid emulsion is added on the slide containing the diluted blood to be tested and the reaction determined in the usual way.

The reaction, when positive, occurs within one or two minutes and consists of the appearance of a fine grayish sediment composed of agglutinated bacilli, visible to the naked eye. This sediment becomes coarser and coarser as the agglutination is continued. Where the amount of agglutination is very small the reaction may be weak or doubtful. When the test is negative no such sediment is formed and the mixture remains clear and unchanged.

Two glass slides are provided in the outfit on one of which is a dried smear of active blood for demonstrating the test so that the physician may familiarize himself with the technic and reaction before putting the test to practical use. These slides should be afterwards cleaned and preserved for spreading and testing the smear of patient's blood as above directed.

SCIENTIFIC LABORATORIES, H. K. MULFORD COMPANY.

CORRECTIONS IN DR. F. E. STEWART'S PAPER, SEPTEMBER NUMBER, PAGES 978–983.

Page 976, fourth line from the bottom should read, "of the red corpuscles, liberating hemoglobin into the surrounding fluid."

Eighth line from the bottom should read, "immune serum to which the name specific *hemolysin* has been given."

Page 977, third line from the top should read, "precipitate" instead of "precipitin."

Seventeenth and eighteenth lines from the top should read, "and complement in a test-tube in the incubator."

Page 978, twelfth line from the bottom should read, "(*spirochæta pallida*)" instead of "(*spirochæta pallidum*)."

Page 980, third line from the top should read, "the capsule to the blood as it oozes from the puncture" instead of "the needle as it oozes from the puncture."

THE ALKALOIDS OF THE AMARYLLIS "BELLADONNA."[2] *

BY DR. FRED B. KILMER.

At the outset of the European War, the belligerent nations placed an embargo upon the exportation of certain drugs, including belladonna. This induced a correspondent in a neutral country to send us a substance which he termed "belladonna root," and which substance he said grew in abundance and could be furnished in quantities if a market could be found for the same.

The substance was a bulb, which, upon investigation, proved to be the *Amaryllis belladonna,* or the so-called "belladonna lily." The statements of our correspondent, coupled with a natural curiosity, induced us to make a further examination.

As to the plant itself, the following statement is made by a horticulturist of repute:

> Formerly there was included in the genus *Amaryllis* a large number of species, several of which have been separated and now have distinct genera. All that were classed as *Amaryllis* a few years ago are now classed as *Hippeastrum,* and there remains in the genus *Amaryllis* only one species, viz.: *Amaryllis belladonna,* of which there are several varieties. (*Amaryllis Johnsoni, Aulica, Regina,* etc., are now properly *Hippeastrum Johnsoni, Aulica, Regina,* etc.)

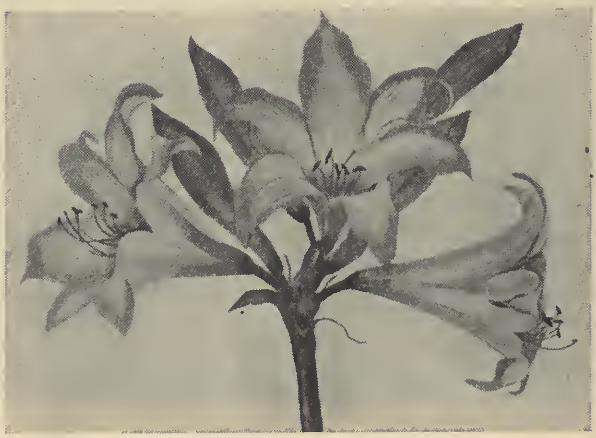

FIG. 1.—*Amaryllis belladonna,* flowering tops.

All these plants are cultivated to a considerable extent in green-houses and gardens, and in recent times have attracted considerable attention at flower exhibitions. The "belladonna" lily is the most showy and the most beautiful of any of the varieties found in the genus.

How this plant received the designation "belladonna" cannot be explained. It bears no relation to the solanaceous plants, and is certainly far removed from the atropa belladonna.

The part of the plant used in our experiments was the bulb. By the usual method of assay a solid extract made with alcohol showed upon assay 3.37 percent alkaloid (approximating 0.3 percent alkaloid for the dried drug). The alkaloid was obtained in crystalline form by extracting the drug with chloroform and ether under the methods ordinarily used for extraction in assaying, the solvents evaporated, the resultant extract washed with acidulated water made alkaline with ammonia; the resultant liquid was again washed with chloroform, followed by a second washing with chloroform and acidulated water, neutralized with ammonia, then washed with ether and from the ether washing crystals were obtained by the aid of a few drops of alcohol.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

In the few attempts made, however, the crystals were not considered as absolutely pure; they were somewhat stained, and there adhered to them a certain amount of non-crystallizable matter.

We may here note that in submitting the facts as to the presence of the crystallizable alkaloid in the *Amaryllis belladonna* to Prof. John Uri Lloyd, he stated:

> I have changed my mind concerning the importance of crystals in alkaloidal compounds. I am of the opinion that with few exceptions all alkaloidal compounds are colloidal or amorphous. I believe this will be irrefutably established, and that eventually a re-study will have to be made of alkaloids in which the natural structure of the alkaloid will be found to be colloidal and not crystalline. The method of individuality will then have to be based upon solubility and insolubility factors, together with physical and physiological actions. In other words, the natural plant alkaloid as obtained will be of the nature of tannin, and in my opinion they will all be found to be naturally colored, somewhat after the intrinsic colors of tannin.

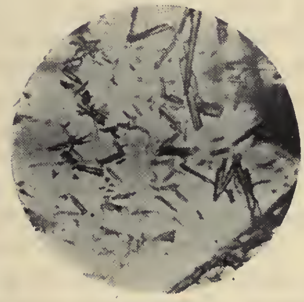

FIG. 2.—Crystals of the alkaloid of *Amaryllis belladonna*.

In the first experimental work with this drug, we were not able to obtain the alkaloid in crystalline form. For the purpose of making a physiological test a syrupy extract was prepared by extracting the dried drug with a mixture of chloroform one part, ether four parts; the percolate was shaken out with acid water, the acidulated water was made alkaline, shaken out with chloroform; the resultant chloroform solution containing the alkaloid was evaporated to a syrupy extract.

This alkaloid containing syrup was submitted to Prof. Robert A. Hatcher, of the Department of Pharmacology and Materia Medica, in the Cornell University Medical College of New York, for physiological test. At first no intimation was given to Prof. Hatcher as to the drug from which the extract was obtained. He reported as follows:

> I am inclined to believe that this extract is a mixture consisting very largely of hydrastin, or similarly acting substances.
>
> Doses of approximately 100 milligrammes of the original extract per kilogramme of body weight of cat or dog, injected intramuscularly, cause a peculiar muscular stiffness and incoördination, with respiratory stimulation and subsequent depression. A dose of approximately 200 milligrammes of the extract per kilogramme of cat, injected intramuscularly, proved fatal in four hours and twenty minutes, causing respiratory paralysis.
>
> The effects are not identical with those of any pure principle with which I am acquainted,

but partake largely of the nature of hydrastin (muscular stiffness, convulsive twitching, respiratory distress, and incoördination, but fail to produce typical strychnin-like convulsions).

The extract is an almost pure alkaloid, that is, a very high percentage of alkaloid is present, for it dissolves in dilute acid, and a 1 : 50,000 solution with an excess of sulphuric acid, which gives a copious precipitate with Mayer's reagent. The dilute sulphuric acid solution of the extract has the typical greenish fluorescence of a solution of hydrastin.

An extract of the extract, made by treating it with $\frac{N}{100}$ sulphuric acid, was without mydriatic action on the cat's eye, and the residue presented the typical actions of the original extract. An extract made by treating the extract with dilute sulphuric acid and normal saline caused feeble mydriasis in the cat (much as hydrastinin does).

Very large doses are not emetic for cats and dogs (hydrastin sometimes causes emesis) and this circumstance excluded the presence of any of many groups, such as: The picrotoxin group; the digitalis group; aconite group, and many others. Gelseminin is far more active than this extract; coniine presents certain muscular symptoms like this extract, but it is emetic.

I think it most probable that this extract contains a large percentage of hydrastin contaminated with decomposition products formed during the manipulation, or else that we have to do with a little known alkaloid that resembles hydrastin in certain respects.

Subsequent statements by Prof. Hatcher were to the effect that the physiological action of the extract did not coincide exactly with that of hydrastin, but that the resemblance was so close that one is forced to conclude that there is either a high percentage of that alkaloid, or a closely associated one—that the manipulation has resulted in the formation of hydrastin, or a closely related alkaloid. Certainly the action elicited proved the presence of these two alkaloids, or other constituents that have closely related action.

After the experiments above stated had been performed, a search of the literature revealed the fact that B. Fragner had, in 1891, announced the occurrence of alkaloids in the *Amaryllis belladonna* which he named "Bellamarine." Fragner had isolated from the *Amaryllis belladonna* four substances which seemed to be distinct from each other, so far as shown by the colors given in contact with acids of certain salts. Fragner states that the alkaloid is excessively abundant on the scales of the bulb of the *Amaryllis belladonna,* also in the roots and in the epidermis cells of the leaves. In the *Amaryllis formosissima,* alkaloids were found in the bulb, the root, the leaves and the flower.

It seems to the writer that it is unfortunate that the name "Belladonna" should have been attached to the Amaryllis, as it bears no relation to the well known *Atropa belladonna.* It is likewise unfortunate that the first investigator should have given the name "Bellamarine" to the alkaloid. This designation "Bellamarine" would indicate an association with the alkaloids of belladonna, to which by its chemical and physiological actions it bears no relation. Indeed, as stated by Prof. Hatcher, it is more closely associated with the alkaloids of hydrastin, with little or no relation to those of belladonna.

I might suggest that a more appropriate name for the alkaloid of the *Amaryllis belladonna* would be "Amarylline," and the alkaloids of the other species of related plants to be given a name following the particular plant in which they may be found, as, for example, "Reginin."

In any event, it is worth while recording the not generally known fact that the *Amaryllis* and, similarly, the *Hippeastrum* all contain highly active poisonous alkaloids. The question as to whether these alkaloids could be made available in medicine would need further study and elucidation.

Johnson & Johnson Laboratories, New Brunswick, N. J.

SOME OF THE RESULTS OF THE HARRISON ANTI-NARCOTIC LAW.*

BY HORATIO C. WOOD, JR., M.D.[1]

The Harrison Act placing morphine and cocaine with their derivatives upon the Internal Revenue list has made a crime out of a disease, for while the narcotic habit may start as a vice, if continued it eventually becomes a disease. Whatever the justification on the grounds of the final welfare of the people at large may be, the enforcement of this law must work a hardship to many individuals. To make, by legislative fiat, a criminal out of a man who for one reason or another, has allowed himself to become the victim of a slavery whose chains he is absolutely powerless to break, without offering him any assistance in winning his freedom, seems an injustice. An appreciation of this unhappy situation led the United States District Attorney of the district of Philadelphia to invite a number of gentlemen to take up a study of the subject of narcomania, both from the medical and sociological standpoint, with the view of determining some solution for this great problem which would be fair to both the community and the victim. You as pharmacists are vitally interested in this law, and I thought that perhaps it might be of interest to present for your consideration some observations springing out of my connection with this committee.

I shall divide the topic into three questions: (1) Is narcomania a really threatening peril to the American people? (2) Have the beneficial results of the Harrison Act been sufficient to counterbalance the expenditure of the time and money which its provisions have necessitated? (3) What is the best way of combating the evil?

The danger to the community of a vice of this nature is to be measured in three dimensions: (1) its effects upon its victims, (2) its extent, and (3) its rate of increase.

It seems hardly necessary to dwell upon the injurious effect upon the individual of the habitual use of narcotics. The community is injured in two ways: First, from the diminished efficiency in its units and, second, through the increased crime, the result either directly or indirectly of the drug. The lessened working capacity of the drug fiend is due in part to the effect upon his moral nature—lessening of ambition, sense of duty, etc.—and in part to the physical degeneration which the habit produces. While occasionally we meet with a patient who has taken morphine for years without any very evident impairment to the general health, it is so rare as to cause comment. Among the cases which applied to the Philadelphia Narcotic Committee there was an average loss of weight of thirty pounds. As most of these cases were by no means extraordinarily robust before they began the habit, this loss of flesh indicated a real diminution of work capacity. Practically all of the addicts under our observation who had been engaged in occupations requiring any real effort, either mental or physical, had been forced to abandon them, and were living either as dependents on their relatives and friends, or else as purveyors of vice and petty crime.

The work of the Philadelphia Narcotic Committee has been largely among the inhabitants of the tenderloin district. If the victims were limited to this class, who after all are but slightly productive, the danger to our national life would be much less menacing; but, unfortunately, they are drawn from all grades of society. The scroll of dishonor bears on it the names of reputable physicians, college presidents, druggists, merchants, artisans, and men from every walk of life; women from the brothels claim sisterhood with the social leaders in their degradation.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

[1] Professor of Pharmacology and Therapeutics in the University of Pennsylvania.

While the general public does not grasp the intimate connection between drug habits and crime, it is a fact well known to the police and students of drug habits that the use of narcotic drugs tends to the increase of crime. With cocaine this is due to the delirious excitement and the sense of intellectual and physical exaltation which it causes, and this drug frequently leads to crimes of violence. Morphine, however, has generally a depressing effect upon its devotees and therefore rarely leads to crimes of violence. It does, however, lead to much petty crime—prostitution, pocket-picking and the like—partly the result of the moral deterioration, and partly from the need of money to satisfy the craving, and the lack of disposition or power to work for the money.

As to the extent of the habit: There is no possible means of making any accurate estimation of the number of drug fiends in this country, but it is manifest it is very large. Lucius P. Brown (State Food and Drug Inspector) from his experience in administering the Tennessee law, which requires registration of victims of drug habit, computed that there were about 200,000 habitual users of opium or cocaine in the United States. My own guess, based on the amount of drug imported, is that the number of opium fiends does not exceed 100,000. But even this figure is appalling.

While we cannot determine the actual number of victims, there are reliable data to show that drug habits have been increasing at an alarming rate.

In 1870 the population of the United States was a little under thirty-nine million. The average importations of opium—including morphine, as well as both the crude and smoking opium—for the decade 1870 to 1879 were, in round figures, 243,000 pounds a year. In the decade of 1900 to 1909 the importations of opiates were approximately 664,000 pounds a year, the population being in 1900 seventy-six million. While the population had been increasing 95 percent the consumption of opium had increased 173 percent. This means a *per capita* increase in the consumption of opiates of approximately 40 percent. The increase in the demand for opium becomes all the more significant when we realize that the introduction of coal-tar analgesics, of the synthetic somnifacients, such as chloral, veronal, etc., has lessened the medicinal use of morphine and opium.

It is manifest, therefore, that not only has there been during the last forty years a continual increase in the absolute number of victims of the drug habit, but also that the rate of increase of drug fiends has been much more rapid than that of the general population. It is further obvious that with all due allowances for the inaccuracy of any guess at the number of drug victims the opium habit has reached a magnitude meriting close consideration. In view of these facts, any man possessed of patriotic feelings or love of humanity must welcome any change of conditions which will diminish this growing evil, even if it necessitates some self-sacrifice on his own part. On the other hand, to make ourselves uncomfortable without accomplishing anything is foolish. The Harrison Act has laid new burdens upon the druggists, and to a lesser extent upon the physicians; burdens, however, which we would bear gladly if by so doing we can prevent the spread of narcomania. But if the Harrison Act does not accomplish its purpose, out of justice to the pharmaceutical profession it should be repealed. We are justified, therefore, in demanding some definite evidence of the efficacy of this Act.

The short time that has elapsed since the act went into force, as well as the tremendous derangement of commercial conditions by the European war, makes any deductions from the amount of opium imported to the amount consumed somewhat unreliable. For example, in 1897 there was over one million pounds of crude opium imported, in 1898 it dropped to seventy-two thousand pounds. This extraordinary variation was due to changes in the tariff, but I quote it to show how great fluctuations in the importation of opium may be caused by external conditions. The fact, therefore, that the quantity of opiates imported in 1915 was nearly 20 percent smaller than in 1914, while interesting, must not be given too great significance.

Much more trustworthy data can be derived from the amounts handled by wholesale dealers. The tremendous increase in 1897 which was due to an anticipated high tariff on opium was compensated the next year by an equally abnormal diminution in the imports. That is, the pharmaceutical manufacturers bought up large quantities of opiates which were stored away until needed. The annual sales, however, of such firms afford an accurate criterion of the amount of drug being consumed in the country; for the individual consumer, especially when afflicted with the characteristic thriftlessness of the confirmed dope fiend, does not store up any large supply of the narcotic.

I have written to three of the largest wholesale pharmaceutical houses in Philadelphia inquiring as to their sales of opiates as affected by the Harrison Act; to these gentlemen I wish to extend my thanks for their courtesy in giving me the desired information. These houses all reported a diminution of 50 percent or more since the Act went into effect. One of them gave me the relative figures for opium, morphine, and codeine which seem to me to be very significant. While the sales of morphine and opium during the first four months of 1916 showed a decrease of about 75 percent as compared with 1914 the amount of codeine sold remained practically the same. Since the latter is rarely, if ever, used by habitués the implication is inevitable that the decrease in the consumption of opiates is due solely to lessened illegitimate use.

Whether these figures will hold for the rest of the country is questionable. We have been fortunate in having in Philadelphia a United States Attorney who has taken a strong personal interest in the narcotic problem and has been exceptionally diligent in the enforcement of the Harrison Act. I feel satisfied, however, that this law has already yielded sufficient results to justify its existence.

The power of the act has, however, been in a large measure destroyed by the interpretation of the courts. Section 8 of the act provides " that it shall be unlawful for any persons not registered under the provisions of the act, and who has not paid the special tax provided for by this act, to have in his possession or under his control any of the aforesaid drugs." The United States Supreme Court has held that the word " persons " can apply only to dealers, that is to those who buy or sell the drugs. In a recent case in Philadelphia the Judge ruled that the possession of large quantities of the drug, together with mortar and pestle, apothecaries' scales, gelatin capsules and similar paraphernalia was not proof that the accused was a dealer; it is necessary that he be detected in the actual sale. While this last decision, of course, holds only for the Eastern District of Pennsylvania, for that section, at present, the Harrison bill is almost a dead letter as an immediate restraining influence.

You and I may, at times, rail at the pedantic decisions of the courts, but the fact remains that the framers of our National Constitution wished each state to be sovereign in all matters affecting only its own citizens; that the Federal Government should exercise no police powers within the borders of any state. The way in which the Harrison Act has been in some places administered has clearly been an invasion of state-rights. Nominally the act is intended to raise money for Uncle Sam to build warships or post-offices and pay salaries—practically it has cost more to administer than the revenue it has yielded. But, despite the decisions which have limited its effectiveness, it still remains charged with an enormous potentiality for good because it makes it possible to enforce state laws restricting the traffic in these drugs.

We now come to the third question: How are we to fight this monster which threatens our civilization? It seems to me we should attack it with three sorts of weapons, sociological, educational, and legislative.

While drug habitués are found in all classes of society they flourish especially among the vicious and the criminal, those who make up what we in the East call the "tenderloin districts." The fight against the drug evil is part of the larger fight against all forms of debauchery. But the sociologic aspect I shall not at present discuss.

The education of the general public as to the danger of narcotism both to the individual and to the community rests chiefly upon the pharmaceutical and medical professions. But we ourselves need to be taught our own shortcomings. Physicians must be brought to an appreciation of the fact that the too ready recourse to the hypodermic needle has led many a victim to life-long slavery. Did you as pharmacists realize the devil that lurks in the cough syrups, and other narcotic patent medicines, which you so thoughtlessly hand across the counter, you would forever banish this class of preparations from your shelves. Would you destroy the happiness, ruin both the body and the mind of your fellow-men for a few paltry pieces of silver he gives you?

The Harrison Act exempts preparations containing less than 2 grains of opium or ¼ grain of morphine in each fluidounce and most of the recent state laws have followed the national legislature in this regard. Nevertheless, do not try to salve your conscience with the thought that so small a quantity cannot do much harm. The most pathetic case of morphine habit I have ever seen was acquired from the use of a widely used Cough Syrup, by a man who was entirely ignorant of its dangerous character. One yellow-fever infected mosquito may not be as dangerous as ten, but it is enough to kill you if it happens to bite you; so one grain of opium may not be as dangerous as ten, but it is enough to rob a human being of his home and happiness and to rob society of a useful citizen, giving in exchange a worthless, hopeless parasite or perhaps even an actual criminal.

I believe, however, that at present the greatest gains against this enemy can be made by proper legislation. Already some nineteen or twenty states have anti-narcotic laws harmonizing more or less closely with the Harrison Act, but there is need not only for prohibitive legislation in the remaining states but also for amendments to stop up the holes which clever rogues have found. Time fails to recount the various schemes for obtaining "dope" which have come to the attention of the Philadelphia Narcotic Committee and I only wish to say that the great majority of them involved the partnership—either innocently or maliciously—of the doctor or druggist or both.

Upon us, gentlemen, rests in large measure the responsibility of awakening the nation to its peril and of directing the efforts towards its alleviation. Let us pray God we shall not be found wanting in our time of opportunity.

SECTION ON PRACTICAL PHARMACY AND DISPENSING, AMERICAN PHARMACEUTICAL ASSOCIATION

PHARMACOPŒIAS, FORMULARIES AND STANDARDS.

MINUTES OF THE FIRST SESSION.*

The first session of the Section on Practical Pharmacy and Dispensing was called to order at 3 P.M., September 6, 1916, in Hotel Chalfonte, Atlantic City. In the absence of Secretary Hugh B. SeCheverell, Mr. E. Berger volunteered to act as secretary. Mrs. St. Claire R. Gay was asked to take the chair while Chairman Joseph Weinstein read his address, entitled

CLINICAL EXAMINATIONS BY PHARMACISTS FOR BROADENING THE SCOPE OF PRACTICAL PHARMACY.

Within the last decade great changes have taken place in medicine and pharmacy. You all know the tremendous progress made in the field of medicine. Has pharmacy kept apace with the advances made by its sister profession? When I speak of pharmacy I have in mind not theoretical pharmacy, not the science of pharmacy proper, which, as we all know, is making great steps forward, but the practice of pharmacy, its functions and its use by the pharmacist as a profession and as a means of earning a livelihood. With the ever increasing competition and in the face of the difficulties to make his pharmacy pay, the practical pharmacist, in attempting to imitate the business methods of other merchants, oftentimes brings down pharmacy to a condition of "practically no pharmacy." He branches out into side-lines that distract his attention from pharmacy proper. When we glance at the show windows of the modern drug store and look at the display of alarm clocks, kodaks, cigars, candies, stationery, school supplies, souvenirs, hardware and even fruits, we are scarcely aware that we are passing a drug store if it were not for the colored globes, and even that mark of identification is now discarded by the chain stores.

I will not question the propriety of handling side-lines of general merchandise from the point of view of the professional pharmacist. In my opinion it is perfectly legitimate to sell in a drug store everything the public calls for, provided the business is conducted in a dignified manner and not to the exclusion of real pharmacy. Especially is it true of the useful lines of goods that have proven well their compatibility with the stock of the pharmacist of the past as well as with that of his present day successor, such as perfumes, soaps, toilet waters, rubber goods, sponges, brushes and the like. But are all side-lines a profitable business venture? After a careful study of the question, we will find that while side-lines were profitable sellers in former years, the number of articles that are selling now with reasonable returns is rapidly decreasing. The financial condition of the average pharmacist is such as not to permit him to carry a large stock of the daily increasing variety of goods, hence he can make no attractive displays, can offer no assortment of goods to choose from and has no complete lines. The result is that this business of his is being gradually undermined by the special stores, the department stores and the chain store, the giant druggists, who, with their unlimited capital, with their tremendous purchasing power and their up-to-date business methods are monopolizing commercial pharmacy, and threatening the very existence of the small druggist. This is especially true of our large cities.

The problem we are to-day confronted with is: What can be offered to the practical pharmacist in lieu of the unprofitable side-lines? As an elevating, professional and lucrative succedaneum I beg to suggest *clinical laboratory work,* a field closely related to the pharmacist's profession, a scientific side-line that brings both additional revenue and considerable prestige.

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* Papers read before the Section will be separately printed and therefore not included in the minutes..

I shall endeavor briefly to illustrate that there is a demand for the work and that the pharmacist is both fit and equipped to perform such work.

The modern practitioner of medicine, unlike his predecessor, in order to make a diagnosis is not satisfied merely with the feeling of his patient's pulse and looking at his tongue. He has now other means for the purpose of making a correct diagnosis, besides the physical examination and the symptoms of the patient, and that is, by examining his vital fluids, his excretions and secretions. A physician to-day can no more practise medicine successfully and properly diagnose diseases without first applying clinical tests, than a surgeon can operate without the necessary instruments. At present the physician partly makes the examinations himself and partly sends the work to the commercial laboratory, if there happen to be any in his vicinity. The time is not far distant when the physician, who has neither the time nor the facilities and proper technic to do the work himself, will be but too glad to place it in the hands of one who is competent to perform it, and that one is logically nobody else but the pharmacist.

We must not lose sight of the fact that originally the physician was his own dispenser. Both medicine and pharmacy belonged, so to speak. to one person, until the two subjects were gradually divided into distinctly separate professions. The right and title to diagnose and treat diseases belongs to the physician, and the pharmacist lays indisputable claims on the preparing and dispensing of the medicines prescribed by the former. Those claims on the part of the pharmacist should be extended further, so as to embrace the new field of clinical and bacteriological work, for, if in order to do justice to his patient, the physician had to relegate the dispensing of medicine to the pharmacist, he will certainly, for the same reasons. have to turn over his clinical work to the one who can perform it better than himself. The pharmacist has been the helpmate of the physician as his dispenser, now let him become also his clinical laboratory chemist and be as ready to engage in that line of work as he is now equipped to do prescription work.

It is evident that this work comes within the domain of practical pharmacy, for, if it were foreign to the calling of the pharmacist, a chapter on diagnostic reagents should have no place in the Pharmacopœia. Those reagents were not put there by the Revision Committee as an ornament, but for the use of the pharmacist, who, by virtue of his close association with the physician and his knowledge to handle test-tubes, burettes and reagents can make good use of them, is best fit to pursue the work and to advance with it.

The chemistry he is taught in the college of pharmacy should be of great help to him. Most of the colleges give him the necessary training by teaching chemical and microscopical examination of urine, milk, etc. Some also have a fair course in bacteriology.

Put, if to become fully able to handle all the work expected of a first class clinical laboratory, the pharmacist would have to broaden the scope of his knowledge by taking special courses in clinical pathology and bacteriology, there is no reason whatsoever why every pharmacist should not begin the work with urine analysis, which constitutes fully 90 percent of the work in the average laboratory. He can creditably perform the examination of urine with the utensils and reagents that should be found in a properly equipped pharmacy, with but a small addition of a little apparatus and some chemicals, specially employed in urinary work, which would necessitate a trifling outlay of money. The only relatively expensive item is the microscope, but the investment would show good returns in a very short time.

Beginning with urine analysis, by constant application and with the aid of literature on the various subjects, one becomes interested in the work, acquires experience and technical knowledge and can gradually take up the examinations of blood, sputum, smears, cultures, gastric contents, milk and so on. Nearly all the work, with the exception of complement-fixation tests and autogenous vaccines, could be mastered in a reasonably short time and carried out successfully in the drug store.

It is to be expected also that our schools of pharmacy will eventually realize the situation and, governed by the law of supply and demand, will include in their curricula full courses in clinical pathology and bacteriology.

The manner in which the work can be carried on and developed depends largely upon location, environments and the ability of the pharmacist. Some may use it as an adjunct to their prescription department, others, especially in the large cities, may make a specialty of it. Whichever course is followed, the results will always be gratifying.

It is needless to enlarge upon the moral effect that this line of work will have in raising the professional standing of the pharmacist, both in the eyes of the public and in the estimation of the physician. He will be looked upon by the public as a scientific man, when called upon to make a puncture in a finger for a drop of blood to be examined; he is certainly not considered so when he hands out a package of razor blades or a glass of ice cream soda. As to the physician, he will certainly be more than pleased to learn that the pharmacist has entered that field of work. He will hail the new order of things with delight and satisfaction when he will be able to send to the drug store in the evening a throat culture and ascertain early next morning by telephone whether it is a case of diphtheria or not. At times some clinical data are wanted while the patient is undergoing an examination, and what will be more gratifying to the physician than to know that the pharmacist downstairs can be relied upon for a quick report on a blood count or a smear examination, while he is waiting at the bedside of the patient. Through this work the pharmacist and the physician will be in constant communication with each other. The physician will cease to look condescendingly upon the pharmacist as a plain dealer in drugs with some quasi-professional pretensions, but will consider him a man of equal professional standing, whom he can consult on matters pertaining to medicine, particularly on clinical diagnosis.

On motion duly seconded, this paper was received and referred to the Publication Committee.

(E. G. Fine, of Boulder, Colorado, explained that the absence of the Secretary was due to his having been seriously injured in an automobile accident.)

The Chairman then called for a discussion of his address.

DISCUSSION OF THE CHAIRMAN'S ADDRESS.

A. W. LINTON: We have heard more or less about the demand for commercial pharmacists, and also about the demand for the professional pharmacists. It is at times hard to reconcile the two. Ninety-five percent of the work in an ordinary drug store is selling, and it is not necessary to have a man trained in prescription compounding to do that; yet men like Dr. Weinstein tell us that there is a demand for the professional pharmacist. It seems to me that there will come to be in the United States two classes of pharmacists, as there are in European countries. Not all the drug stores that we have at present could be professional pharmacies. There would not be enough work in filling prescriptions to keep them busy. There will be a demand for the store that will sell the ordinary remedies and other lines of goods now associated with drug store work. I believe that there is also going to be a demand for the professional pharmacy, where prescriptions will be filled by a highly trained prescription specialist, and where clinical examinations can be carried out. I think it is going to be for the best interests of all concerned, to separate these two lines of work. Let those who sell ordinary proprietary remedies, etc., give up prescription work. They do not usually do very much of it any way, and it does not pay for the room it takes up in the store. Then let there be another class of stores in which there are men who have a professional training, and are prepared to do prescription work and perform clinical examinations. I do not mean to suggest that one business is not as honorable as the other. Both are important; but I think that a separation of the commercial and professional sides of the drug business is the best solution of the problem.

JACOB DINER: There is no question about the advisability and desirability of having the pharmacist engage in the professional line of his calling, or about his being qualified, from every point of view, to take up laboratory work, whether it be urinalysis, examination of the gastric contents, or anything else. It is always suggested, that a man who enters the professional side of pharmacy and gives up the commercial side is an altruist and is not likely to be very well remunerated. It is true that the demand for the professional pharmacist may not be so great at present; but I am free to say, that I cannot see the necessity for waiting for this demand to grow. Not so many years ago, there was no great demand for electric bulbs and electric lights, etc.; and automobiles were not in such great demand until recently. Nor are flying ships to-day a great necessity. The demand for automobiles has grown to a great extent, because the desire for them was created; and even in Atlantic City the appearance of flying ships is preceding the demand for them. We have to go out and create a demand. We must show the physicians that we are able to do this work if a demand is to be created. The drug store is the logical place for clinical work. I do not say that tissue work will come within the province of the pharmacist, because it requires special training in pathology, physiology and the diagnosis of disease. Other kinds of work, however, can be done by the pharmacist; and if he desires to do it, the demand will come.

F. T. GORDON: Who pays for the examination, the doctor or the patient?

THE CHAIRMAN: The successful laboratory worker gets the work from the physician, and the pay from the patient.

F. T. Gordon: I have been up against so many cases where the doctor would charge five dollars for diagnosis, and send the patient to me to have the examination made for fifty cents.

THE CHAIRMAN: You should not do it for that. It is not done in New York.

MR. GORDON: In Pennsylvania before a young graduate in medicine can get his license to practise, he must serve a year as a hospital interne. A good part of the work that he does consists in the routine examination of feces, gastric contents, urine, sputum, etc. None of these examinations are paid for, unless it is for a private patient. The people are trained to send their samples to the hospitals where the work is done for nothing.

THE CHAIRMAN: They should not do that work for nothing.

I. A. BECKER: In Chicago physicians employ nurses to do a lot of this work. These women act in the double capacity of nurse and clinical laboratory worker.

THE CHAIRMAN: That is because the pharmacist does not do it.

E. F. COOK: The Philadelphia College of Pharmacy is taking steps to prepare men to do this work. This has been one of our ideals for many years. Probably there will develop two types of pharmacies; one where ordinary commercial lines are sold, and another where this professional work can be done. The former type does not appeal to the physician in many instances—especially when he finds that the patient has taken his prescription there, and the druggist has sold him a cold cure instead. I feel that while we have a few unusual men who conduct a broad commercial business and also a splendid clinical business, they are exceptions. I think that professional stores, such as the Morgan store in Philadelphia, will develop. There are others in the country, but Morgan's is a good example. Some of the men going out from our college have opened clinical laboratories, and many physicians are glad to use their services, rather than those of younger physicians; because they feel that a young physician is a possible rival, and they do not care to put their work in his hands. The doctor is welcoming the trained pharmacist who is ready to do clinical work. We believe in this sufficiently to give a special course of one hundred and eighty hours of bacteriological work in one year, coupled with many other lines of chemical analysis, etc., which is preparatory for this work. We have exhibited in the museum of the College, what we believe to be a model professional store, with a sales room, prescription department, and various laboratories. We have great faith in the future of this type of store. There cannot be a large number of them, but a community of twenty-five or thirty-five thousand can readily support one.

THE CHAIRMAN: I am glad that the Philadelphia College of Pharmacy is including this work in their curriculum, and am positive that the other Colleges will take it up also.

The following papers were read and discussed: "Pharmaceutical Emulsions from the Colloid Standpoint," by Leo Roon. "Uniformity in Dispensing," by J. Leon Lascoff. (This paper was published in the October J. A. PH. A., pp. 1112–1116.) "Diacetylmorphine U. S. P. and Its Hydrochloride," by H. H. Schaefer. "The Propaganda for Legitimate Prescription Writing," by Jacob Diner. "The Real and Ideal in Dispensing—Random Reflections," by L. E. Sayre.

The several papers were referred to the Committee on Publication.

The First session of the Section on Practical Pharmacy and Dispensing was adjourned at 6.05 P.M.

SECOND SESSION.

The second session of the Section on Practical Pharmacy and Dispensing was called to order at 9.45 A.M., September 7, 1916, in Hotel Chalfonte, by Chairman Joseph Weinstein. The order of business was a continuation of the reading of papers; the following were presented, discussed and referred to the Publication Committee:

" Pharmacopœial Revision," by Mrs. St. Claire R. Gay, Chairman of the Committee on Pharmacopœias, Formularies and Standards.

" Pharmaceutical Preparations Added to U. S. P. IX," by Otto Raubenheimer.

" General Formulas in U. S. P. IX," by Otto Raubenheimer. (This paper was published in the September number, pp. 984–988.)

Anent the statement, " that aromatic waters should not be permitted to freeze," the author stated that he was responsible for this inclusion, as in his experience a demijohn of rose water, which had frozen, on thawing was devoid of its fragrant odor. There was considerable discussion on the subject, as freezing is sometimes resorted to in concentrating flavors. The author, however, contended that his knowledge came through experience.

The next paper was entitled: " Newer Pharmacy of the New Pharmacopœia," by H. V. Arny. (This paper was published in the September number, pp. 989–990.)

The next paper was by M. I. Wilbert and entitled, " The Scope and Possible Uses of the Recipe Book." (This paper was published in the October number, pp. 1121–1125.)

SYMPOSIUM ON THE RECIPE ROOK.

H. P. HYNSON: I would like to present my original idea regarding the Recipe Book. I had the honor of being on the National Formulary Committee, and Professor Diehl said that I helped him a little. My idea was that the National Formulary, having been recognized by the United States Government as a book of standards, should be made the very best book that could be produced by American pharmacy as represented by this association. There were a good many formulas in it that did not measure up to the standard set by our association. If these formulas were taken out, the question was, What should be done with them? Every time that I suggested that they be deleted, others said that the people wanted them. We worried over this matter for a long time, until the idea developed that there must be some place made for these formulas; and I conceived the idea of suggesting a recipe book as a repository for them. It seemed to me that this was not a bad idea, if I do say it myself. It would make it easy for us to take camphorated tincture of opium, for instance, out of the Pharmacopœia. There appears to be no reason for changing any of these old formulas; yet, if they remain in the Pharmacopœia or National Formulary, they must be brought up to date and made as good as possible. If these formulas were changed, however, they would lose their value. The only object that I had in suggesting the recipe book was to make a place in which to put formulas that were still in use and should be preserved, but should not remain in either of the two standards.

I plead guilty of voting for the appendix in the present National Formulary. I thought that it would be a good place for these original formulas, and that the Revision Committee need not then be responsible for the pharmacy of these. I have no objection to additions being made to the Recipe Book, as they are apparently desirable; but I should like to see this indexed also (an index was suggested by Mr. Wilbert, see his paper). I think that it is a fine idea, and better than my original one. It will tell the druggists for the next five years, where they can find these various formulas. After this, there will be a book giving these formulas. I consider Mr. Wilbert's idea in regard to the index a splendid one. I do not know anything more useful than my old index of the Proceedings of the American Pharmaceutical Association. If you young men have not begun to collect a pharmaceutical library, you had better begin at once. I began far too late. Fortunately, however, I was able to buy a set of the AMERICAN JOURNAL OF PHARMACY extending over forty years at a public sale for two dollars and a half. This started my library, and I gradually added to it. A little while ago, I had to write a little memoir of my good friend, Professor Simon and it did not take me two minutes to find out all that he had done. I hope that you will endorse Mr. Wilbert's suggestion in regard to the index idea.

OTTO RAUBENHEIMER: As has been very correctly pointed out by Professor Hynson, the father of this Section, and also the father of the Recipe Book, this is a splendid idea. He has started us going; and while we may differ with him in regard to a few things, nevertheless, the object we are trying to accomplish is just the same. The Recipe Book, according to my way of thinking, is just a book of unofficial formulas. As the National Formulary has been made a legal standard, we must have something that is unofficial. I hope that the time will come when paregoric and different diarrhea mixtures will go into the Recipe Book. That even in Washington original ideas may originate, has been proved to-day by Dr. Wilbert. I am glad that the idea of the index occurred to him. I did not think of such a thing until he brought up the subject. It will be published in the December number of the JOURNAL because the matter was acted on favorably by the Council. It will be published in addition to the other index; and hereafter, in December of each year, the JOURNAL will contain a new index. Then, if we want to find a formula, we can do so by looking in this index. This will be a great benefit to the average pharmacist, and will enhance the value of the JOURNAL, which will be greatly in demand.

JOSEPH WEINSTEIN: In my address, yesterday, as Chairman, I pointed out that side-lines are not profitable any more, and that pharmacists should take up something new and broaden their calling, to include, for instance, clinical examinations. If pharmacists have a Recipe Book, they can find in it a ready reference to anything they need, and will be able to make many articles that they can sell. Supposing a certain kind of ink is called for, if the pharmacist has the formula in the Recipe Book, he can make it. People come into the store asking for all kinds of things; and if the pharmacist knows that the formula for the thing asked for is in the Recipe Book, he can prepare it. There are now so many formulas for the same thing that pharmacists do not know which one to select; but if they had some tried formulas in the Recipe Book, they could make use of these. The value of this book would be tremendous. I think that we should lay stress on the subject of having as many formulas for the use of the pharmacist as we can. The stock could from time to time be replenished through the medium of our JOURNAL; and then we would have something to induce people to join the Association as we could show them what it is doing to help them earn a livelihood.

MRS. ST. CLAIRE R. GAY: The present situation in Europe has caused quite a dearth in cosmetics. I was called up on the telephone by a rather prominent firm of hair-dressers in New York, who wanted to know whether I could not give them something to take the place of a European preparation that they were unable to get. They gave me a list of ointments that they used in the treatment of the hair. The term "Polka Dot" ointments, which was applied to them, about expresses what they were in composition. I asked whether they would mind telling me the price they got for these, and was told that they asked seven dollars and a half for a little half-ounce box of one, and five dollars for another. On examination, the first was found to contain 1 percent of balsam of Peru in vaseline; and the ingredients were not even blended. They probably put the balsam of Peru in the melted vaseline and just shook them together. The other ointment contained ½ percent of ammoniated mercury in lanolin and vaseline. I told the people that I thought that we could duplicate these in this country, without serious trouble. They asked me to do the work, but I was engaged at the time and could not do it. I got them some one who could, however; and that man is to-day making all their preparations. He recently told me that he had just finished making five hundred dollars' worth of the balsam of Peru and lanolin ointment. I asked him whether he thought he had charged them enough, and he said that he thought he might be able to buy an automobile after a while. The American pharmacist has paid too little attention to this line of work. Everything does not depend on the wrapper. It is the composition. If any man will give a good clean preparation that will really do the work, there is a fortune in it.

Frederick T. Gordon: I want to say something from a different angle. As the official answerer of correspondents in one of our pharmaceutical journals, I have had more requests for formulas for cosmetics than for anything else. Some say, "Please send me a formula for a shaving cream equal to Blank's," for instance. To find a recipe or a formula sometimes takes several days. I have even had requests for a formula for red fire. Of course, not many druggists make this, and you would hardly think there would be a call for it; but you never can tell when you will want it.

My idea is that if we start to obtain these formulas and collect them in a book, so that the druggist does not have to look through a volume of journals to find what he wants, and the chances are that the very thing he wants is not there, it will be a very good thing. We want to get a real recipe book in some absolutely substantial form, so that it can be easily referred to. If we want to revise it every year, we can do so. It must be compact; it must be indexed, and it must have in it a whole lot of things that the average druggist wants to write to his pharmaceutical journal and ask about. There are a lot of formulas for inks, toilet waters, and other things that the druggist is constantly in need of, which are not in the National Formulary, and exist only in scattered form. If these were published in the Recipe Book, they would have some sort of official sanction, and would not be like a formula for the skin that I saw in a newspaper, which, if made up and used, would undoubtedly take the skin off.

George M. Beringer: There is no reason why the American Pharmaceutical Association should not produce a good recipe book, suitable for the use of the American pharmacist. It must be comprehensive, and cover the needs of the pharmacists in the entire country. It must contain everything—even culinary recipes.

Referring to the question of cosmetics, I would say that I find that the foreign formularies contain a chapter on cosmetics, and treat the subject in a scientific way. Going back to the original English translation of the French works, we have an ample basis for work on cosmetics, on which we can develop an American line of preparations. I believe that the manufacture of cosmetics would prove to be a good scientific side-line to the business of the pharmacist. I have had great pleasure in taking up the study of cosmetics sent to me for examination—some American, and some French; and I have had very nice determinations to make. We cannot follow all side-lines, and the pharmacist who will develop a side-line of toilet preparations will be leading his field as well as the one who develops along clinical lines. Specialization is the field, and every pharmacist should pick out his own particular sphere of work. Then he will gain a reputation of his own in his community.

J. M. Francis: Many of the formulas published in the pharmaceutical journals are not practical for producing the high-grade articles with which the pharmacist will have to compete, especially in the way of cosmetics. They may be good enough for the purpose, but when you are up against the kind of goods others will have on sale, you will find that you cannot sell the products. I am not criticising the editors who publish these formulas. A man who edits a journal cannot be expected to be an expert in a dozen different lines. He must get his material where he can. Where does he get it? The editor does not go into the laboratory and work out these formulas. He may not have one, and would not have the time to do this work if he had. The great weakness in the plan is that the man that makes the formula does not publish it the way he makes it. That is what I had in mind in criticising the formulas in the journals. Some of these formulas can be modified, some are useless, and some are fairly good; but very seldom will they produce an article as good as some of those now obtainable, and used the world over. Therefore, we should have a committee to do the work of experimentation.

M. I. Wilbert: I agree with Dr. Francis about the difficulty of finding a perfect formula in a journal or recipe book. Anyone who sticks to such a formula deludes himself and is apt to get into trouble. The formulas so far published in the Recipe Book are merely suggestive. They are only for experimental purposes. The object in printing these formulas twice is to have them first printed as suggestions in the JOURNAL and make them accessible, depending largely on the membership of the Association to work them out and perfect them to as great a degree as possible, and then to include these improved formulas in the Recipe Book, when it is published. Even then, the book will not be perfect, and should be improved on by the one using it.

Dr. Raubenheimer and Mr. Gordon misunderstood what I meant by a cumulative index. All you will have to do with such an index is to look in the last one published and you will be able to find anything that has been published in the JOURNAL regarding the formula in question.

H. P. HYNSON: I move that the Section endorse the action of the Committee looking to the publication of the index, and that the thanks of the Section be tendered to Mr. Wilbert for his idea. I am willing to have the scope of the Recipe Book enlarged, but my idea was to have it only for formulas that had been established. Some time ago, I wanted a formula for Ringer's solution. I got one from Johns Hopkins, and wanted to authenticate it; then I found another formula in the *Proceedings of the American Medical Association*, and also one in another publication. I then had three, and did not know which to take. If we had the one that the Committee had gone to the trouble to get, the original one, it would be the best to use. I believe that after five years' trial of this index, we shall come to the conclusion that the American Pharmaceutical Association does not want to be responsible for any more formulas than those that have been used in standard books.

R. P. FISCHELIS: Is the index as sanctioned by the Council to be a cumulative one or an annual index? I think it is best to have a cumulative index.

OTTO RAUBENHEIMER: It would have been too hard to go before the Council and ask for something for next year. I only asked for something for one year. They voted that in the December number of the JOURNAL there should be published a separate index of all the formulas that had been published up to that time, covering from January, 1912, to December, 1916. Next year we can ask for something more.

(The motion of Mr. Hynson was seconded and carried.)

NOMINATIONS OF OFFICERS.

The following nominations for officers of the Section were made:

For Chairman: W. H. Glover, of Lawrence, Mass., and David Stolz, of Syracuse, N. Y. For Associates: Mrs. St. Claire R. Gay, of New York City, and Charles W. Holzhauer, Jr., of Newark, N. J.

The last paper read at this session was by Franklin M. Apple, entitled, "Reaping a Full Harvest." The paper was discussed and the recommendation contained therein adopted.

The meeting was adjourned at 12.40 P.M.

THIRD SESSION.

The third session of the Section on Practical Pharmacy and Dispensing was called to order by Chairman Joseph Weinstein at 2.45 P.M., September 7, 1916. The reading and presentation of papers was continued and the first one of the afternoon's program was by R. P. Fischelis, entitled, "Practical Pointers From a Prescription Store." After a discussion of the paper, Dr. Horatio C. Wood, Jr., of Philadelphia, addressed the Section. He spoke in part as follows:

As a physician, I always look upon the pharmacist as my best friend; I have a sense of confidence in the likelihood that he will stop me from killing someone. To err is human, and I recognize my humanity. If I know that a prescription is going to a competent pharmacist, it is always a source of relief to me to feel that if, by some slip of mind, I write a drachm where I mean a grain, he will probably hesitate to put the prescription up, and I, as well as the patient, will be saved a lot of trouble. I, therefore, always welcome any criticism that the druggist makes on my prescriptions. Sometimes he criticises them on the ground of the menstruum that I have chosen. Sometimes he is right, and sometimes he is wrong; but whether he is right or wrong, I always thank him, because it shows that he is taking an interest in his business and looking after my interests as well. If he is right, I am always ready to learn.

I have no harsh or unkind criticism to make of the druggists. I find that most of them know their business and attend to it; but every little while I have some vexatious failure on the part of the druggist. Knowing Prof. Remington very well, I sometimes go down to his house and unburden my soul.

One criticism that I have to make is the fact that a large number of them do not seem to know that there is such a book as the Pharmacopœia, or they pay no attention to it, if they do. When the eighth revision came out, a pharmacist who had a drug store on one of the most prominent corners of Philadelphia, in the middle of the doctors' section, and who did an almost exclusively prescription business, sent out a pamphlet calling attention to the changes in the eighth revision. Shortly afterwards, I ordered an A. B. S. pill, and ordered it by that name, and he called me up and asked me where he could find it—and he was the man who sent out the pamphlet. I asked whether he read the Pharmacopœia, and I could hear him blush on the telephone.

Another instance happened last winter. I wanted to give a hypnotic, and decided to give ethyl carbamate, or urethane, and I wrote for it by its Latin name. This was at three o'clock in the afternoon. A half-past ten that night, when the patient ought to have been asleep, the druggist called me up and asked whether I knew of any place where he could get it. I said, "It is in the Pharmacopœia." "Oh," he said, "is that the same as urethane? We have that, but it is spelled 'ethyl,' and you wrote 'æthyl.'" I showed him that in Latin they still use the diphthong.

The greatest trouble that I have is due to the druggist's not having pharmacopœial things on his shelves. I will tell you an instance. This was not a Philadelphia drug store. I was up in Pennsylvania, for a little relaxation, and saw a gentleman there, who was not feeling well. I ordered a tonic containing ferric phosphate, strychnine sulphate, and aromatic elixir. He came back later and told me that they could not fill the prescription at two drug stores, but why, I do not know. Probably they did not have the ferric phosphate, of which I am very fond.

I could give a long list of experiences of this kind—instances in which I have been unable to get things that really, in certain cases, it would be impossible to get along without. I am free to confess that these were generally drugs that are rarely called for, and for which there is not a great deal of demand; but they were staple drugs, and there is no reason why the druggist should not have carried them in stock. I do not see why a physician should be forced to prescribe proprietary remedies of the hypnotic class. I might mention such a popular drug as veronal, which I use at times; but generally ethyl carbamate is as satisfactory as veronal, or more so. Unless, however, I know the drug store to which the prescription is going, I may have to write for the proprietary remedy, against my own desire, for fear that the patient cannot get the prescription filled in time to do the work. I had an interesting experience along this line with what is regarded as the highest type of prescription drug store in Philadelphia. I will not mention the name, but those of you who know Philadelphia drug stores will probably know which one I refer to. One drug that I use is aluminum hydroxide. The prescription went to three drug stores, and they all said that they could not compound it. It went to another druggist, and he compounded it. I met him afterwards and congratulated him on the fact that he carried the drug in stock. He said, "I did not have any of it, but I made it." He was the only druggist who was clever enough to know that he could precipitate it from any of its salts, and he did not have to wait to call up and buy a supply.

I want to repeat what I said in the beginning: that despite the little peculiarity of the drug store, I always have a very kindly and confident feeling towards the druggists. I have not said anything about the mistakes that they have made—mistakes of carelessness. The druggist occasionally makes a mistake in wrong quantities and adding a wrong ingredient. I may say that I hope to be pardoned for a little self-glorification. One man referred to the fact that doctors are not copy-plate chirographers. I always tell medical students in the beginning of the course, "If you cannot write so that it can be read, buy a typewriter." I am sorry that not all the students follow my advice; but I do insist, for the protection of the doctor, as well as the druggist, that the doctor should write as plainly as a man can write.

Personally, I do not think that there are many of my prescriptions which could not be interpreted by pharmacists of some experience. I thank you, Mr. Chairman, for this little opportunity to meet with you personally. (Applause.)

In the absence of the authors, the following papers were read by title and referred to the Publication Committee:

" Plasters," by Thomas Latham. " Conveniences in the Store-Room," by William Mittelbach. " Absurdities of the Press as They Relate to Pharmacy and Chemistry," by F. E. Niece. " A Plea for Further Study of Green Plant Drugs," by H. W. Jones.

Emil Roller presented the next paper of the program that was read and discussed, entitled, " United States Pharmacopœia and National Formulary Propaganda."

The next number of the program was a " Prescription Clinic," conducted by H. P. Hynson, who in his introductory remarks stated that while the term " clinic " did not altogether apply, the embodied meaning of the discussion of difficulties was applicable. (The prescriptions with discussions thereon will be printed in a succeeding issue of the JOURNAL.)

The subject of the next paper of the program was " Mercury Salicylate and Its Preparations," by J. Leon Lascoff.

The last paper was by Louis Spencer Levy, entitled, "At Last a Safe Bichloride Tablet."

NOMINATION AND ELECTION OF OFFICERS.

David Stolz of Syracuse asked that his name be withdrawn as nominee for chairman of the Section, and as there was now only one nominee for each office, the Secretary was instructed to cast the ballot electing the nominees, namely:

W. H. Glover of Lawrence, Mass., Chairman; David Stolz of Syracuse, N. Y., Secretary; Mrs. St. Claire R. Gay of New York City and Charles W. Holzhauer, Jr., of Newark, N. J., Associates.

The officers were then installed. A rising vote of thanks was extended the retiring officers.

The final session was adjourned at 5.25 P.M.

THE PROPAGANDA FOR "LEGITIMATE" PRESCRIPTION WRITING.*

BY JACOB DINER.

On his way back from the Boston meeting of the A. Ph. A. the late C. S. N. Hallberg paid me a visit at the store which I was then conducting. In the course of our conversation he referred to the new impetus which he felt had been given at the meeting to the propaganda for the writing of proper prescriptions. He made some statements, relating to the percentage of legitimate prescriptions as compared with those calling for nostrums of unknown composition and of questionable value, and estimated that the latter would outnumber the former about 3 to 1. I not only assured, but convinced, him that my prescription file averaged less than 5 percent of the undesirable prescriptions mentioned. At that time so-called propaganda work was still in its infancy. Since then much good work has been done both by individuals and associations. Yet if one were to count up the results achieved I venture to say that they would not prove very satisfactory. Here and there some success has undoubtedly been recorded; but on the whole the expenditure of time and money, not to mention the labor, should have shown better results. One is naturally led to ask what are the reasons for the inadequate returns on this investment? The general tendency of propaganda workers is to lay the blame for this comparative failure on the indifference or the greed of the practitioners of medicine and to let it go at that.

From careful observation of many of these propaganda movements, some in which I was personally active, I have come to the conclusion that most of them were not aimed in the right direction nor carried out in the right manner. When one wishes to correct an evil, to treat a disease, as it were, it becomes his duty to first properly diagnose the case, study it from its etiology, through its pathological lesions, consider possible complications and sequelæ, etc., and then, having a fair knowledge of physiology, pharmacology and therapeutics, it becomes a matter of simply applying that knowledge for the purpose of outlining a successful course of treatment. Looking upon the indiscriminate prescribing of nostrums as a disease we will study it as a distinct entity, diagnose, prescribe and, perhaps, cure it.

Definition.—Nostrum prescribing is a disease characterized by indiscriminate prescribing of everything that anyone recommends, either by way of pamphlets, advertising in second-rate journals, bolstered-up case histories or liberal distribution of samples.

Etiology.—The principal cause of this disease is ignorance, on the part of the physician, of the fundamental principles of pharmacology. Contributing causes: Laziness, fear of incompatibilities—successfully played on by unscrupulous manufacturers—and occasionally the desire to make a dishonest dollar by participating in the profits, if there are any left, derived from the sale of these nostrums. Other contributing causes are also: Medical journals, too indifferent to the cause of rational treatment, medical journals owned or in the pay of nostrum venders and the abuse of hospital and dispensary prescribing by number so that the embryo doctor never does know what his patient is getting.

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*Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City meeting, 1916.

Symptoms.—The symptoms can be found on the prescription file of any pharmacy in this and many other countries.

Treatment.—Like all treatments, the treatment of this disease may be divided into three subdivisions: (1) Prophylactic; (2) dietetic; (3) medicinal (generally there is also the hygienic—but if the first three are successful the hygienic condition of the patient, physician and pharmacist will leave nothing to be desired).

Prophylactic.—The proper prophylaxis lies, of course, in the medical colleges. Up to within recent years the teaching of pharmacology and therapeutics in the medical schools was a matter of minor importance. The selection of a professor in surgery or medicine was a matter of vital concern. The specialties were represented by men high in their community. Laboratories were equipped for pathology and bacteriology, biochemistry, etc., irrespective of cost. Research work in all branches was encouraged and many grants and endowments were made for that purpose. This was true of every branch of medicine except one—pharmacology and therapeutics. I know that here and there exceptions could be cited, but as a rule this condition held good in the majority of medical schools. The number of hours assigned to the subject were reduced to the minimum possible, and in many schools a dozen or so recitation hours were all that could be spared for this "useless" (?) branch of medicine. It is said that a prominent teacher in medicine of our city was wont to tell his students that if they could make the proper diagnosis they need not bother about the treatment (only he presented this in a more dramatic way than I am stating it here).

It becomes, therefore, evident that the physician who studied and graduated some years ago went out into the world entirely unprepared. To-day the majority of medical schools are embodying an extensive course in pharmacology and therapeutics in their curriculum. The Council on Education of the American Medical Association is insisting on that and doing splendid work in that direction, so that to a great extent we feel somewhat reassured as to the "lost art" of prescription writing, since the proper prophylactic measures are being enforced.

The actual treatment, therefore, can be limited to those men in practice now, who have not enjoyed the systematized courses in the subjects mentioned, the majority of the practitioners of to-day.

Dietetic and Medicinal.—Any therapeutist will tell you that the success of all treatment depends on the employment of that agent which is physiologically, or, in this as well as many other cases, logically indicated. Now, inasmuch as the disease is due to lack of proper training on the part of the physician, it becomes at once evident that the logical remedy is to supply the means to correct this deficiency. This, in a measure, has been the object of all so-called propaganda campaigns, but I fear the *modus operandi* was not the logical one. In the majority of these abortive attempts the greatest attention possible was paid to supply the "tired and ever busy physician" with a short name, formula indifferent, which he was urged to use "as just as good as the nostrum now employed by him." There was no attempt to go back to first principles. And that was a serious mistake.

As pointed out by Professor A. B. Lyons, a member of the Pharmacopœial Revision Committee, "physicians themselves should be the ones to select the combinations they desire to prescribe, as in the beginning they did in constructing their pharmacopœias." Therefore, the aim of propaganda work should be directed towards teaching the physician something about the drugs themselves, make him familiar with their appearance, solubility, best mode of prescribing and their physiological action, if not also their therapeutic indications. Work of this kind must be taken up systematically, must be handled carefully and must continue at regular intervals for a sufficient period of time to cover the subject as completely as possible.

It is my good fortune to have been authorized to carry out such an educational campaign under the auspices of The Bronx County Pharmaceutical Association and, with your permission, I will endeavor to outline here just how we intend to do this.

The campaign is divided into three distinct methods: (1) Joint meetings; (2) circulars to the members of the medical and pharmaceutical profession in the Bronx; (3) samples.

Joint Meetings.—A circular is being prepared notifying the physicians and pharmacists that beginning with October, 1916, there will be held one meeting each month for the next ten months. At these meetings teachers in pharmacology and other prominent pharmacists and physicians will deliver lectures on pharmacology, taking up one subject at each meeting. The subject to be treated at the October meeting will be: Digestives; November: Cathartics, etc.

Circulars.—The circulars will contain a brief abstract of the lecture delivered that month and will be sent out to the physicians and the pharmacists together with *samples,* which will be representative of some of the modes of prescribing suggested in the lecture and the circular.

The first circular outlined reads as follows:

"DIGESTIVES.[1]"

Before beginning the discussion on remedies used for the purpose of aiding digestion I will, with your permission, briefly discuss the physiology of digestion. Broadly speaking, digestion begins in the mouth and terminates somewhere in the large intestines. In the mouth the ptyalin, acting in the alkaline medium supplied by the saliva, initiates the carbohydrate digestion and this carbohydrate digestion, according to some physiologists, is continued for about half an hour in the stomach until the hydrochloric acid secretion of the "acid" cells neutralizes or acidifies the gastric contents. Then "gastric digestion" of the protein begins. This is carried on by the ferments of the stomach, principally pepsin and rennin, which are active only in the acid medium supplied by the hydrochloric acid. The partly digested protein and carbohydrate are then forwarded into the small intestines by the peristaltic action of the stomach, and the relaxation of the pyloric sphincter. While passing through the duodenum the partly digested food, acid in reaction, is made alkaline by the bile coming from the liver through the bile-duct, leading from the gall-bladder, and to this is added the secretion of the pancreas, carried through the duct of Wirsung and emptying into the duodenum at the same point where the common duct opens (ampulla of Vater).

The pancreatic secretion grossly consists of three enzymes: A protease (trypsin), an amylase (amylopsin), and a lipase (steapsin). The function of these enzymes is to digest respectively the protein, carbohydrates and fats. These enzymes, as already mentioned, require the alkaline medium which is supplied by the bile, besides its other functions. When we come to the administration of digestants we must bear in mind these fundamental principles of digestion.

Gastric digestion may be impaired either by a deficiency or absence of the hydrochloric acid, or by an excess of the latter. Without entering into the diagnosis or general treatment, I will limit myself merely to the rationale of supplying those elements necessary for the improvement of impaired digestion. In those cases in which there is deficiency of the gastric enzymes, notably of pepsin, there is as a rule also a deficiency of the hydrochloric acid. Therefore the physician, of course, will prescribe pepsin, in an acid medium. The points to be remembered, however, are these: Pepsin itself is a protein and as such is subject to certain reaction of proteins. It is precipitated or coagulated by alcohol and its enzymic action is impaired or destroyed by such coagulation as well as by subjecting it to the action of heat beyond certain temperatures; it is also incompatible with many other substances. Furthermore its action is desired in the stomach, its natural habitat, at a time when nature would normally supply it in the active stomach, that is from 30 to 45 minutes after ingestion of the food, and it must be promptly available for that action, therefore it appears logical that pepsin should be given in liquid form, in a medium which is free from alcohol and without complicating other drugs, except hydrochloric acid which enhances its activity. For that reason the following rather palatable formulas suggest themselves.

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[1] Abstract of a lecture delivered before members of the medical and pharmaceutical profession of the Bronx, under the auspices of the Bronx County Pharmaceutical Association, October, 1916.

℞	Pepsin	10 grains
	Dil. Hydrochloric Acid	10 minims
	Glycerin	½ fluidrachm
	Water,	
	To make	1 fluidrachm

Instead of water, aromatic waters like those of anise, cinnamon, spearmint, or peppermint may be used, or a small amount of the corresponding oil.

Syrup of rose, tincture of cardamom compound or other adjuvants or vehicles may be employed or substituted. It should be remembered that alcohol is not compatible with pepsin and such addition to a preparation should be in very limited amount.

If we are dealing with a condition of hyperacidity, then antacids are indicated.

Antacids are subdivided into two great groups, direct and indirect antacids. The former act directly in the stomach to counteract excessive acid secretion, while the latter after absorption into the circulation render other body juices alkaline or tend to reduce existing hyperacidity (urine, etc.). For our purpose, we are concerned with direct antacids only. Those available are, the hydroxides of calcium and magnesium, and the carbonates and bicarbonates of sodium, potassium lithium, calcium and magnesium. (Dr. Diner, in his paper, also included suggested combinations for these.) If we desire, however, to improve intestinal digestion, then recourse must be had to the pancreatic secretion. Pancreatin is admirably adapted for this purpose. Bearing in mind that intestinal digestion does not really begin until at least two hours after ingestion of food and also remembering that pancreatin should become active only after reaching the small intestines and that we must secure an alkaline medium for its activity, the following form prescription suggests itself:

Pancreatin	5 grains
Sodium Bicarbonate	1 grain
Inspissated Oxgall	1 grain

Enclose in capsule and coat with tolu.

The prescriptions are given as types only, the judgment of the physician will direct and adapt the remedy to the case and not the case to the remedy. Many modifications, changes and improvements are possible, and we are certain that the consideration of each case as an individual one with the adaptation of the remedy accordingly is bound to result in benefit to the patient and gratification of the physician.

The circular is to be accompanied by a letter, and a form for the first subject is outlined as follows:

Dear Doctor:

Enclosed please find an abstract of a lecture delivered at the October meeting of the Bronx County Pharmaceutical Association.

It is the intention of our Association to continue these lectures throughout the entire winter. We have the promise of prominent teachers of pharmacology to continue the course so long as there is interest shown by the men of Bronx.

Many of us, both in the medical and pharmaceutical profession, are apt to become somewhat rusty in our materia medica and pharmacology. Many of us would be willing to pay a fair fee for the privilege of attending a post-graduate course in these subjects if we could only find the time and opportunity to do so. We believe that in securing the free service of the professors of pharmacology in the various schools of medicine of this city we have provided the opportunity, and by holding the meetings at 9 o'clock at night we have arranged for a convenient time.

We would greatly appreciate an expression of opinion from you as to whether you are interested in this move or not.

We enclose with this a sample of some capsules each containing 5 grains of sodium bicarbonate and 1 grain of inspissated oxgall; the capsules are coated with tolu as outlined in the enclosed circular.

Fraternally Yours,

DISCUSSION.

Otto Raubenheimer: This is certainly an ideal condition for propaganda work. But where are the men to do it? The trouble is, that we have in New York but one Diner. Of course, other places may have other Diners; but the man to do that kind of work needs to be a pharmacist, and also a physician, because he must be able to answer the questions of physicians. Dr. Diner possesses this happy combination. It is certainly the right kind of propaganda work.

C. P. Wimmer: To my mind, it is unnecessary to have the combination of physician and pharmacist in one person. Arrangements could be made with teachers of pharmacology in medical colleges to have them deliver the medical part of the lecture, and with a teacher of a pharmaceutical college to give the other part as a supplement. I think that this paper contains the best suggestion I have heard for this propaganda work. Physicians will not read circulars, except the head lines, and get-together meetings while good, do not accomplish the purpose. If, however, you have a medical lecture and this supplemented by a talk on the required remedies, delivered by a pharmacist, the meeting will be interesting to both physicians and pharmacists, and valuable work will be accomplished.

Emil Roller: I think you should not be too optimistic. If you have these lectures, you cannot have them very often; and to get physicians together is just as hard as getting pharmacists together after a day of hard work. Besides, there is an antagonistic factor, the salesmen of the pharmaceutical manufacturers are generally physicians, and have studied the subject in such a way as to be able to show the physician that their preparation is better than any other, and that he will do better to keep the preparation in tablet form; for if he writes the prescription, the druggist may not have the particular preparation. To offset the influence of the salesmen of the manufacturing houses, we must have scores of lectures, and must send propaganda men to see the physicians at their offices. To see them only at the lectures will have little effect. Office dispensing is the greatest danger that confronts pharmacy to-day; and it is so common over the country that we should take other measures than this propaganda work to stamp it out. We should try to have passed a law providing, that if a physician wants to dispense his own medicine, he must have a registered pharmacist in his office. So long as the handling of medicaments by the physician, assisted by the office girl or nurse, is tolerated, we shall have this trouble. The cost of the two or three dozen tablets that the physician gives is small, and it forces the patient to come back to his office for another supply. Propaganda work will be practically without results, so long as we do not consider these points.

L. H. Fried: We have a National Formulary, and I think that book contains as many formulas for digestants as could be found anywhere, although a physician might improve on them. Still, if the physician could be induced to learn the contents of the books and prescribe articles found in the United States Pharmacopœia and National Formulary, I think it would be better than for us to suggest combinations for prescriptions.

L. E. Sayre: I have been in a part of the country, the Middle West, where I could watch the value of propaganda work. It seems to me, when we come here and discuss these problems, that those who take the pessimistic view are apt to feel that we should have obtained better results. I feel much encouraged by the work done in the East along the line of propaganda. I can point to a number of physicians who never knew anything about the National Formulary, and very little about the United States Pharmacopœia, who now come to me and say, "I am going to hold to these formulas, because they are authentic." I could mention a number of cases in which this effect has been obtained in the Middle West. While we have discouraging aspects of the situation I think that we must keep hammering away all the time;

and finally we shall get somewhere. The fact that physicians when they dispense ought to employ a registered pharmacist has been emphasized over and over again. In many hospitals where students formerly compounded prescriptions, they are now employing registered pharmacists. That looks as if we were making a little progress. I think that if we can get the physicians to coöperate with us, we can together enlist the attention of the other physicians so that they will hear us.

PHILIP ASHER: I think the condition can be remedied through the hospital drug store. This Association should start an association of hospital drug stores. The druggists in hospitals come in contact with the young physicians. If we take the young men who are studying medicine and have the pharmacists give them instruction on the proper method of dispensing, showing them what the pharmaceutical preparations are, I believe we shall get better results.

While it is true that in all colleges of medicine, there is a little dispensing taught in the department of pharmacology and therapeutics, there is very little practice. What the professors tell the students on the subject makes very little impression. The young men should be in actual touch with things, and see what the combinations mean. When they get this practical knowledge, they will know more about the subject when they get out of college. The reason that we have so many large pharmaceutical houses is not because of lack of interest or laziness on the part of the retailer, but because of the fact that it is much easier for a young physician to remember the names the pharmaceutical laboratory has given him than to use his own brain in constructing prescriptions to fit the case. I believe that an association of hospital apothecaries should be started in our Association. Then this propaganda work will have more force, and we shall see the effect of it in time.

MISS M. G. TRUBY: I can confirm this gentleman's ideas, because we run a dispensary, and young physicians often come for advice in the writing of prescriptions. They do not seem to have much practical prescription writing in the medical curriculum. In Pennsylvania we have a State law which says, that all physicians must have one year of experience in a hospital; so the plan proposed by Professor Asher would give all the physicians in the State a chance for instruction by the hospital pharmacists.

GEO. HOHMANN: It is one of my duties to take young men around the wards, criticise their work, and go over their cases. After we have made a diagnosis we discuss the treatment, and spend a good deal of time on that subject. I have my Pharmacopœia and National Formulary right with me. When we commence talking about treatment, I naturally ask, "What would you do for the patient?" I get all sorts of answers. They know very little about therapeutics or the action of drugs. The medical schools are very lax in teaching this, especially the pharmaceutical end of it—how these drugs may be combined; so we spend an hour every morning in going over the Pharmacopœia and National Formulary and in prescription writing.

I think that if you can get the men while they are young, you can do much with them, I have accomplished quite a good deal. Last year was the first opportunity for such work with us and it has been very successful, and this year I have a new plan along the same line that I think will net good results. It will take several years, probably, but that is the only way that you can reach the physicians. The older men have fixed ideas, and it is hard to change them; but you can mold the ideas of the young men. We go over the why's and wherefor's in the preparation, find out why each constituent is there, and give a thorough explanation of its purpose.

F. S. FRANKFURTER: I am in a position to know that the training of the college of medicine is telling on the young graduates. Those in the Bronx are now depending upon the United States Pharmacopœia and National Formulary preparations. In one week I have had three different doctors call for a formula for summer complaint in children, each having the same composition. I think that Fordham is somewhat responsible for this improvement in the method of prescribing.

MRS. ST. CLAIRE R. GAY: I do not agree with Dr. Hohmann about the possibility of molding a young physician. After he gets out of college, there is nothing that he can learn. He knows it all; and you are insulting him, when you try to tell him anything. The older men, those of value to the medical profession, will much more readily take a new suggestion. You can tell them of a new preparation, and explain to them why it is better than the one that they are now using; and, nine times out of ten, they will use it without hesitation. If you tell the same thing to an interne, he will say: "It's easier to make the other one." He will listen when he is in college, but not to the pharmacist outside. I just ignore the interne and go to the attending physician, and then the interne is forced to use it.

Another point is this: What are you going to do with the "five-drug" doctor? It is useless to say that he does not exist. Johns Hopkins is turning men of that sort out by the hundreds. What are you going to do with the surgeon who says, "It is not the medicine that pulled the patient through, it is my surgery"—when we all know that it is the good work of the nurse plus the good care of the pharmacist. What can you do with a man who says he needs only five drugs? Can you do propaganda work with him? I am willing to have any man come into my hospital and try it.

JACOB DINER: I thoroughly agree with Mrs. Gay that the older man is more adaptable to teaching, and our propaganda work is for the older men. We are trying to train the younger men so that they will be amenable to gentle treatment by the pharmacist.

The matter of the hospital pharmacist is well taken care of in New York. We do not permit any man to dispense drugs in our hospitals unless he is a licensed pharmacist and registers with the State Board.

The "five-drug" man is not a hopeless case, by any means. He is using five drugs intelligently, and all that we have to do is to enlarge his scope.

I would hesitate to class myself with men like Cushing, Bastedo or Hatcher; but we have enlisted the services of the men teaching pharmacology in New York to give these lectures, because they are both pharmacologists and physicians. Physicians, therefore, will listen to them: because doctors will be glad to hear a talk on a remedy given by a physician, and will do so with more interest than they will listen to a talk from a pharmacist.

It has been said that this was all purely theoretical, and that no practical results could be obtained. I recall that, ten or twelve years ago, when the Hudson River Pharmaceutical Association first started with a propaganda, we carried it on with litttle experience and the little knowledge at our disposal and yet, while when we started there was an average of 74 percent of proprietary remedies used in prescriptions in the surrounding districts, within two years we had succeeded in reducing the percentage to less than 15 percent. That may be theoretical; but in our district it was a mighty practical, good result, when we could look over prescriptions taken at random from various stores, and find such a low proportion of proprietary remedies called for. The doctors came to our meetings, and they did not come for a feed or a free souvenir. They selected the topic nearest to their minds, and these talks were given. There is one thing, however, that must not be left out of sight and that is "stick-to-it-iveness." You have to stick to it. You have to hammer away at it.

The detail man is all right in his way. He reaches the physician but once a year, however, and the circular can reach him once a month. That propaganda is carried on, also, among the pharmacists. We tell them what we are going to talk of and show them the preparation, and they are urged to be prepared to meet the demand and be individual propaganda agents with the physician, when he comes into their stores.

There is no doubt that, with the hospital pharmacist on the one side, and the young physician on the other, the result is unsatisfactory. The modern medical school, however, is not satisfied with merely showing the young physician what a preparation looks like. We now take the young man in the second year and put him into the pharmaceutical laboratory. He prepares a galenical of each type. He is told that this is not required of him in order to make him a pharmacist, but to show him what is necessary in making a galenical. In the next year, he sees the application of pharmacodynamics. He is shown very clearly by tracings that the antipyretic is practically inactive in a normal case, and does work in an abnormal case, a febrile condition. He is, furthermore, if he has gone through that course, put through a drill in prescription writing. We do not stop there, but let him compound some prescriptions. We give him the prescriptions as generally written, and suggest corrections and improvements.

So successful has this method been with the two classes that I have been teaching, and with those taught by some others, such as Bastedo, Hatcher and Wallace, that some of our medical graduates, after coming out of the hospital courses, have enrolled themselves in pharmaceutical schools and taken courses there, so as to get better acquainted with drugs. I do not believe that the outlook is so bad. Let us stick to it and work with enthusiasm.

REAPING A FULL HARVEST.*

BY FRANKLIN M. APPLE, PHAR.D.

The long expected, the greatly delayed, the far more perfect collection of standards, which are very vital to those engaged in the drug business, has been completed, and is now official under the title, The National Formulary, Fourth Edition. It became official September 1, 1916.

This accomplishment should be a source of great gratification and pride to every member of this Association, as it was compiled and perfected by a few of our members, who, philanthropically, gave of their time and talents in a large measure.

Those persons, who are unfamiliar with the tasks that such an accomplishment entails upon those who assume the responsibility for the production of a trustworthy collection of standards for medicinal agents, cannot imagine and appreciate the worries and cares that beset the members of the Committee on National Formulary of the A. Ph. A.; hence they do not realize the measure of thanks that is due to these noble workers.

Having been favored with opportunities to observe the workings of this committee upon several occasions, I realize what knotty problems confronted them and how earnestly they labored to solve the same, with the result that I feel a far deeper sense of appreciation for what has been accomplished, under the unfavorable conditions with which they were compelled to contend.

Lest you may assume that the N. F. IV was compiled by these pharmaceutical experts without any expense to this Association I will narrate that, to my certain knowledge, the travelling expenses and hotel bills of these members were paid with the funds of the Association; but only for the time they were actually engaged with National Formulary work at an annual meeting of the Association (see Treasurer's report in the 1909, *A. Ph. A. Proceedings,* p. 465; also J. A. PH. A., October, 1914, p. 1397).

Having produced a complete formulary, it is presented to the Association as a valuable asset—particularly so when coupled with the honored and respected name of the Association, as sponsor for the same, and the printing and distribution of it is in the hands of the Council, when the Association is not in session.

Having become the possessor of such a valuable asset, upon which the Association has expended several thousand dollars, the question, what disposition shall be made of it, naturally arises in the minds of the thoughtful members.

Provision was made, in a measure, at a previous meeting of the Association to meet this dilemma, as we will presently see.

Mr. George M. Beringer, in his address as president of this Association, at the Detroit meeting in 1914, offered a recommendation as follows: "With the appearance of the new edition of the National Formulary, the first prepared as a legal standard, its importance will be greatly increased and the sale should be very extensive, and the Association should reap a substantial profit.

An organized effort should be made to make it a more popular book and to acquaint the physicians as well as the drug trade in general with its character, importance and usefulness.

I would recommend that the Committee on National Formulary be instructed to appoint a specialist or else a sub-committee to prepare an epitome to be used in advertising and popularizing the work, and that subject to the approval of the

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[*] Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City meeting, 1916.

Committee on Publication and the Council, an edition sufficient for these purposes be published.

Also that either an independent committee or a sub-committee on National Formulary be appointed as a Committee on Propaganda, whose duty it shall be to acquaint the physicians with the character of the N. F. preparations, to prepare literature for distribution through our members and the drug trade in general, explaining the formulas, uses and dosage of a selected list of the more desirable preparations. Such a system of advertising the book should add very materially to its usefulness and, considered solely from an advertising standpoint, the Association should be amply reimbursed for their expenditures.

The Association passed a favorable verdict upon this suggestion, in the following manner: The Committee on President's Address reported in these words: "The Committee approves of the publication of an Epitome of the N. F. with the objects stated in the address, and that there be established a Committee on Propaganda with the object of increasing the use and extending the influence of the N. F. preparations."; and the Association, upon the motion of Mr. M. I. Wilbert, that the above recommendation be referred to Council with power to act on favorable recommendation from the general session, endorsed such a course of action.

The Association should take definite action on this proposition at this time, and if favorably acted upon, the proper official should attend to its application without delay.

As the owners of this book of legal standards, and holding an honored and respected position in the eyes of the medical profession, this Association is the logical one to expound its merits to the medical practitioners, who will accept without reserve the literature offered to them by the American Pharmaceutical Association.

With the income that will be derived from the sale of the N. F. IV it should be possible to take up this work without delay, thereby demonstrating to the rank and file of druggists that the A. Ph. A. is mindful of their material interests in consequence of which the efforts of our Membership Committee should be rendered much easier and far more satisfactory results be obtained.

Inasmuch as the N. F. is recognized by the Federal authorities as a book of legal standards for medicines purchased or prescribed under the titles by which they are therein designated, and as it is necessary that provision must be made at once to collect data and correct any errors that may have crept into this revision, also get in readiness for the next revision of the N. F., which will entail considerable expense upon the Association, it is imperative that the Association shall derive the greatest possible income from the present revision.

This may not sound professional or altruistic but it appears to me to be good logic; and as the ultimate object is to benefit mankind by the wise expenditure of this income in an endeavor to improve our remedial agents and secure greater accuracy of standards, no serious objections can be raised to such a course of action. Is it really unprofessional? Upon careful analysis, is it not altruistic?

It does not sound very professional to make appeals in the churches for large collections, with which to meet urgently pressing bills, but the custom is frequently followed I am certain, the ultimate benefits derived therefrom justify the action.

As this Association has not been liberally endowed by a Carnegie or a Rockefeller, it is justified in reaping as great a harvest as possible from the sale of its assets, so long as it does not overcharge for its ware, taking into consideration the business risks it must run in the venture.

Up to this period in the history of the N. F. this Association appears to me to be like unto a farmer who received a grant of land, that appeared to have good productive possibilities, from which he could derive a nice income. He tilled the soil carefully, received assistance from his children in caring for the growing crops and everything looked very bright for his family's comfort when, alas! he carelessly gathered a portion of his crops, and then sat idly by and allowed his neighbors to gather whatsoever they wished of the remaining portion of the crops, he taking chances on deriving some benefits from the increased valuation of his land, due to the demonstration of the possibilities of the land.

The time for such action has passed, and in this day of strenuous competition (and this Association has its competitors) it is the wisest and safest policy to reap a full harvest.

DISCUSSION.

Geo. M. Beringer: It seems to me that one of the real duties of this organization is to make an effective propaganda in behalf of the National Formulary, which is the property of the Association. There is no one better acquainted with its contents and the purpose that it is to serve than myself; and I think that we should certainly have taken the opportunity to have prepared an epitome of the book two years ago. That was the purpose of the recommendation I made at that time. It seemed to me that an epitome, to be prepared and distributed coincidently with the publication of the work, would have been a good thing for this Association to have undertaken. This task should not be left to the men of some other organizations, whose membership may be indifferent.

H. P. Hynson: Do you think that this could best be done by the Committee on National Formulary?

Geo. M. Beringer: I think that a sub-committee of that Committee could readily prepare such an epitome and thus demonstrate its value to every pharmacist and physician.

F. W. Meissner, Jr.: The American Medical Association has asked the Board of Trustees of the U. S. P. for the privilege of preparing an epitome of the new Pharmacopœia. I do not know whether they asked a like privilege of the Council of this Association or not. If so, would it be advisable for this Association to publish an epitome of the National Formulary for general distribution? Would there be a probability of competition, and of unnecessary expenditure on the part of this Association in publishing an epitome of the National Formulary alone?

Geo. M. Beringer: It seems to me that it would be best for this Association to do its own propaganda work. The viewpoint of the medical man is very desirable, but the thought was that the official epitome prepared by the American Pharmaceutical Association should be used for work in the local and state associations, with such explanations as we alone could give. Possibly it might also be placed in the hands of physicians.

F. M. Apple: Another reason that actuated me in taking up this recommendation was the fact that propaganda work has been done by a commercial organization on our own property. This organization got into a serious controversy with the American Medical Association, and I felt that this fact weakened materially the propaganda work on the National Formulary. This is our own property, and we have expended a great deal of money on it. I feel that the time has come to act, if we do not wish this volume to be treated in the same way. We want to have it arranged so that when we go to the members of the American Medical Association, they will have no reason to refuse to accept it. I want to keep the propaganda for the National Formulary and United States Pharmacopœia free from any commercial taint.

M. I. Wilbert: I want to call attention to the possibility of doing just exactly the opposite of what Mr. Apple suggested, of having an absolutely clean and acceptable propaganda. I am at sea as to how a purely pharmaceutical epitome of the National Formulary would appeal to the medical practitioner, and if we go beyond that, we are going beyond our province, and will cast some doubt on the object of our propaganda from the physician's point of view.

AT LAST, A SAFE BICHLORIDE TABLET!*

BY LOUIS SPENCER LEVY.

Under ordinary circumstances no one who is aware of the great amount of work to be done at a Convention like this should have the audacity to suggest for discussion the subject of this paper.

For several years, more particularly since the press publicity attending the demise of a Georgia banker due to accidental poisoning with mercuric chloride, the problem of preventive measures either in case of accident or attempted suicide by this means has been discussed in lay and scientific circles; but a simple, safe, reliable and practical solution has proved very elusive. In the hope, therefore, that the suggestions I have to offer will meet with the approval of the pharmaceutical profession and of the public, as they have of numerous physicians of note, I venture to risk your displeasure.

There is no need to recount, other than in a brief manner, the reasons why tablets of mercuric chloride have heretofore lent themselves to accident. First, they are small and easily swallowed; second, they have practically no taste; third, they have no definite characteristics of appearance that mark them as dangerous.

It is clear to all of us that any preventive measure must be reliable even under exceptional conditions. Analyzing the reports of a large number of accidental mercuric poisonings, the two facts that I have already pointed out stood out most prominently, viz.: that the victim was not warned either by his sense of taste, nor by any difficulty in swallowing. These are the two very important points to consider. Nature has thrown safeguards around many of our involuntary acts to save us from ourselves, and merely by making certain that these natural means of protection shall be made use of, safety from accident can be assured. One of these safeguards is the sense of taste, and another the reflex action which causes a spasm, or constriction, of the muscles of the pharynx whenever an object not easily swallowed reaches it. The sense of taste is a guide that can be depended upon, if due regard is paid to those effects that are independent of the sense of smell. Many substances cannot be identified by the sense of taste if the sense of smell is excluded by holding the nostrils tightly shut; and this applies even to such highly flavored substances as vanilla bean, orange peel, etc. However, a pungent, biting sensation produced in the taste-buds by such substances as pepper, mustard, etc., is instantly noted, and they invariably produce an impulse of rejection.

In order to overcome the objections heretofore mentioned, I have devised a tablet containing about one percent of pungent oils, or oleoresins, such as capsicum, mustard, etc., and in no instance has any one failed instantly to pause and remove from his mouth a test tablet containing this guard irritant. The question naturally arises as to the effect upon the tissues and mucous membranes of such added ingredients, but repeated tests, under all conditions in which mercuric chloride can be used, have failed to produce a single objection on the part of the patient, or the medical attendant. This can be readily appreciated when it is borne in mind that the strength of the solution with reference to the guard ingredients is less than 1:100,000 in the case of a bichloride solution of 1:4000.

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*Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City meeting, 1916.

These tablets have been tested, as I have said, under all circumstances and in solutions of all the usual strengths.

I have already referred to the part played by the throat itself in preventing accidental swallowing. Very few persons find much difficulty in swallowing pieces of food of considerable size, but anything of a rod-like shape, approximately 1¼ inches in length, cannot be swallowed without great difficulty, if at all, even with water. I have therefore designed a tablet of this length, about ¼ inch in width and about ⅛ inch in thickness, weighing about 1.6 grammes. One or two attempts to swallow similar tablets of harmless composition will soon convince anyone, not only with regard to the actual swallowing of the tablet, but as to any unwitting attempt to swallow it. No matter in what state—whether half-asleep, semi-inebriated, or suffering from a raging headache—anyone should attempt to swallow one of these tablets, his attention would be immediately arrested, and in an unmistakable way, to the unusual character of the tablet—and that would be sufficient to prevent the accident.

Of course, we all realize that careless people and children cannot be prevented from putting unwonted objects into their mouths, but it is to prevent them from going any further that these tablets will be useful.

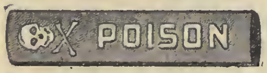

Fig. 1.—Shape and size of described tablet.

Now with regard to suicidal intent, the psychological features of the individuals are those to be borne in mind. Although a person bent on suicide has open to him many avenues of self-destruction, it is nevertheless true that those of a morbid mind, or possessed of an insane impulse, often yield to a suggestion as to the mode of suicide. Those who take bichloride tablets do so with the idea that there will be no discomfort—that long before anyone can interfere the poison will have made death certain. Thanks to the able work of eminent men in the medical profession, there is now more likelihood of saving these poor victims, but most of all, the use of tablets of this design will do much to reduce such suicides.

Intelligent observation has shown that if a suicidal impulse is broken, the attempt will seldom be renewed, and surely anyone harboring the idea that mercuric chloride will provide comfortable means of exit from life will promptly discover his error when his tongue is assailed by a burning sensation.

In conclusion, I merely wish to emphasize, that, because of:

First, the unmistakable and objectionable taste, which prevents mistakes but does not interfere in any way with the normal use of these tablets, and,

Second, their peculiar size and shape, producing in the pharynx an involuntary constricting spasm that prevents casual swallowing, the wholly desirable use of mercuric chloride for antiseptic and hygienic purposes will become more general, as there need be no longer any danger or fear of accident.

DISCUSSION.

Otto Raubenheimer: I believe that Mr. Levy has struck the right shape for the tablet. One of our members, Mr. Apple, devised a coffin-shaped tablet, somewhat similar. Mr. Levy's device depends principally upon the rod-shape. On account of the long, thin shape, the tablet cannot be swallowed without breaking it up. Of course, anyone could break it up and swallow it; but it could not be confused with a headache tablet—which is usually round. The addition of mustard and capsicum causes a sensation in the throat and stomach that would repell its administration.

David Stolz: It is a peculiar shaped tablet. Has anyone swallowed one of these and has an emetic been given afterwards?

The Author: The added ingredients have emetic qualities; but, an emetic cannot be depended on under all circumstances, some persons having idiosyncrasies against emetics.

I do not depend on the mustard or capsicum to cause emesis. The idea is to prevent the tablet from being swallowed. Anyone trying to swallow it by breaking it, will have such a sensation in the stomach as to lead him to seek help. Simply touching the end of the tongue with a tablet indicates its unusual character.

CASWELL A. MAYO: I tried to swallow one of these tablets, and was unable to do so on account of its shape, though I have had to swallow a good many unpleasant doses. I also found that the effect on the tongue caused immediate rejection. It is highly important that some measures be taken to overcome the desire on the part of the Boards of Health to restrict the sale of these tablets, because they are in such general use as an antiseptic. We have succeeded in convincing the President of the Board of Health in the City of New York, that the health of the public would suffer more from restriction of their use than from allowing them to be in general use. The introduction of some such tablet as this would do much to remove the danger from their inadvertent use. We cannot stop people from committing suicide, but we can prevent accidental suicide by some method like this.

FREDERICK T. GORDON: Mr. Levy said that he used oil of capsicum or mustard. I should think that in making a solution, these would be apt to cause irritation.

THE AUTHOR: I explained in the paper that the amount present, when the tablet is dissolved in a quart or two of water, is so infinitesimal as not to be noticeable.

FREDERICK T. GORDON: I think that Mr. Levy has stumbled on something much better than he knows. They have given up the use of bichloride in France, because it kills the tissue, as well as the germs; but by introducing the capsicum, this destructive effect has been overcome.

THE AUTHOR: I did not bring that point out in the paper, but I knew of it, and it will be brought out in another paper, to be read before one of the medical societies. This effect revealed itself very quickly when the tablets were used for irrigating purposes. The patients mentioned that they were more soothing than ordinary bichloride tablets. Experiments are going to be made on the effect of these, as compared with that of the ordinary tablets, on cell growth and granulation.

MERCURY EXPERIMENTS AID THERMOMETER MAKERS.

The United States Bureau of Standards has completed a very careful determination of the freezing point of mercury, using platinum resistance thermometers to measure the temperature. The result of this work gives –38.87° C. (–37.97° F.) for this temperature.

It is interesting to note that as far back as 1862 the English Government, recognizing the importance of an accurate knowledge of this point, appropriated £150 to have it determined. The value then obtained, –38.85° C. (–37.93° F.), is in agreement with that obtained at the Bureau of Standards. However, other determinations made previous to and after this early work cast some doubt on its accuracy.

A knowledge of the freezing point of mercury is of great importance to thermometer makers, as it marks the lower limit to which a mercurial thermometer may be used and furnishes a method for calibrating or pointing the scale below 0° C. (32° F.).—*Commerce Reports.*

SECTION ON EDUCATION AND LEGISLATION, AMERICAN PHARMACEUTICAL ASSOCIATION

MINUTES OF THE FIRST SESSION.*

CHAIRMAN FRANK H. FREERICKS: The next subject of the program is the report of the Committee on Patents and Trade-marks and Dr. F. E. Stewart, Chairman of that Committee, will give us the report.

REPORT OF COMMITTEE ON PATENTS AND TRADE-MARKS.

During the past year so much of importance has developed in regard to patents and trade-marks that the limits of one report will permit only brief mention of the same.

"PERPETUATING PATENTS BY TRADE NAMES."

Under the above caption the *Journal of the American Medical Association,* in its August 12, 1916, edition, editorially comments on the attempt of the Bayer Company, American representative of the Farbenfabriken of Elberfeld Company, to perpetuate "the patent on aspirin (acetylsalicylic acid)" by an extensive advertising propaganda in the newspapers, the purpose being "to identify the product with the so-called trade-mark (aspirin) and to this extent hamper competition after the expiration of the patent." The editor says: "Not content with seventeen years' monopoly the aspirin people are attempting to retain a hold on the market *in perpetuo* by associating the name of the company with the trade name 'aspirin.' There can be no better time than the present, therefore, for the medical profession to substitute, for the nondescriptive name 'aspirin,' the descriptive and correct name 'acetylsalicylic acid.'"

In this connection it is interesting to revert to the fact that during the time that Mr. Arthur Greeley occupied the position of chief examiner, your committee met by invitation at the U. S. Patent Office to discuss the subject of patents and trade-marks and their relation to pharmacy. Referring to the attempts to perpetuate monopolies of patented products after the expiration of patents by alleged trade-marks, Mr. Greeley said: "When Uncle Sam finds that patentees are using their alleged trade-marks as a string to pull back patents after their patents expire he will soon put an end to the practice."

The intent of the patent law is that the public, after patents expire, should have the right to compete with the patentees on equal terms, a thing manifestly impossible if the patentees are permitted to control the currently used names of these products after the patents expire.

This is made very clear by the discussion of the U. S. Supreme Court in the Singer Sewing Machine case (1895) which reads as follows:

"The result then, of the American, the English, and the French doctrine universally upheld is this, that, where, during the life of a monopoly created by a patent, a name, whether it be arbitrary or be that of the inventor, has become by his consent, either express or tacit, the identifying and generic name of the thing patented, this name passes to the public with the cessation of the monopoly which the patent created. When another avails himself of this public dedication to make the machine and use the generic designation, he can do so in all forms with the fullest liberty, by affixing such name to the machines, by referring to it in advertisements and by other means, subject, however, to the condition that the name must be so used as not to deprive others of their rights or to deceive the public, and therefore that the name must be accompanied with such indications that the thing manufactured is the work of the one making it, as will unmistakably inform the public of that fact."

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* Papers with discussion of the subjects will be printed apart from the minutes, hence only the title of the paper will be mentioned in the minutes. As far as possible reports of committees will be included in the minutes. These minutes are continued from p. 1093, October issue.

ARE NAMES OF SECRET MEDICINES TRADE-MARKS?

The question whether or not the names of secret medicines are trade-marks is again attracting attention, owing to its bearing upon the proposed "Goldwater Ordinance," now before the courts in the City of New York. According to *Standard Remedies* for December, 1915, "the courts will not protect the manufacturer of a proprietary article against the use of the name of that article by another who 'discovers and knows' the secret of composition." The only protection the proprietary medicine manufacturer can expect from the courts in this connection relates to the question of fraud. The courts "will protect the original owner of the name against such unfair competition as might result from simulation of the package, or against any affirmative act calculated to pass off the goods as and for the previously known goods."

"In other words, Mr. Smith has a preparation known by a trade name and manufactured under a secret formula or process. Jones, his competitor, 'discovers and knows' the secret of composition and can make the identical article made by Smith and call it by a trade name originated by Smith, and the courts will not protect Smith against unfair competition resulting from an 'affirmative act' calculated to 'pass off the goods as and for the previously known goods.' Jones may not dress his goods in imitation of Smith's and must even add some distinguishing statement showing that the article is of his own production, and is not the production of Smith, but the main point is, that Jones may, if he can duplicate the product exactly, call it by the trade name devised by Smith, by which name the trade is accustomed to call for it and to know it."

Standard Remedies, a journal "published in the interests of the Manufacturers and Jobbers of Proprietary Medicines, Cosmetics, etc.," suggests that manufacturers of proprietary goods do not comply with the requirements of the New York Board of Health, in regard to publishing the formulas of proprietary articles on labels or registering them with the Board "lest they jeopardize their trade names by voluntary filing any information with the New York Board, whose right to demand the information may not exist."

However, this interpretation of the trade-mark law does not agree with the interpretation given to it by some of the law firms specializing in this department. For the purpose of calling your attention to the system which those law firms and their clients are attempting to build upon the trade-mark law, your Chairman addressed certain questions to one of the firms referred to, and received the following answer:

"In the case of the quinine suggestion which you make, we have this to say:

"If your company had first extracted the medicinal element known as quinine, and if you had coined the word quinine and applied it to this medicinal element, you would have had a right to call it a trade-mark and not a generic name. It would have been your perpetual property, and you could have prevented any one else from selling the same thing under the name quinine."

Under this interpretation of the patent and trade-mark laws, the discoverers of all of the alkaloids, glucosides and other active plant principles, the discoverers of alcohol, chloroform and chloral, in fact, the discoverers of every chemical substance could have patented the processes for making them and registered the names by which their products were currently known, as trade-marks; thus, by means of patents they would have been able to monopolize their manufacture and sale for seventeen years, and perpetuated the monopolies indefinitely by the exclusive commercial control of these names after the expiration of the patents. How can pharmacopœias, text-books, pharmaceutical and medical education be maintained under such a system as that? Yet, that is the system in one form or another which the so-called proprietary medicine trade, including the manufacturers engaged in the synthetic drug industry, is asking us to endorse.

The question again arises, what are we going to do about it? Many plans have been suggested, and there is much difference of opinion on the subject, even in your committee, the members of which have given it special study. Your committee last year called your attention to the proposed revision of the patent and trade-mark laws devised by the committee on patent law revision of the Philadelphia Merchants' and Manufacturers' Association, adopted by that body and placed before the House Committee on Patents of the U. S. Congress at Washington in connection with the hearings on the Paige Bill. Most of the provisions of the proposed revision are included in the resolutions proposed by the Pennsylvania Pharmaceutical Association at its last annual meeting to show the attitude of that body on the U. S. patent laws. These resolutions, however, do not include the suggestion made by the committee appointed by the Merchants' and Manufacturers' Association in regard to trade-marks, namely: that an addition shall be made to Section 19 of the trade-mark law relating to what may be registered as trade-marks which shall include also, a definite statement as to what shall not be registered, including the wording of Circular No. 19, issued by the Librarian of Congress, stating that names of medicines, etc., are not subject to copyright. Section 19 of the trade-mark law would then read as follows:

(*a*) No trade-mark will be registered for a new article of manufacture, chemical substance, medicine or food, unless a distinctive name shall accompany the application, for the use of those who would compete in manufacturing and vending the same article and also for the use of the public in purchasing the same.

(*b*) No trade-mark will be registered for names of articles of manufacture, names of games or puzzles, names of substances, names of products or names of medicines.

The following resolutions were passed by the Pennsylvania Pharmaceutical Association at its last annual meeting:

RESOLUTIONS PASSED BY THE PENNSYLVANIA PHARMACEUTICAL ASSOCIATION TO SHOW ATTITUDE ON U. S. PATENT LAWS.

"*Whereas,* The pharmacists of the United States, owing to the European War, have been deprived of many of the chemical products used in medicine, and

"*Whereas,* The American public is obliged to pay extravagantly high and unjustly extortionate prices for the synthetic drugs and medicines they are obliged to buy from foreign holders of patents on medicinal products, and

"*Whereas,* The United States patent laws in granting product-patents instead of process-patents to foreign manufacturers are hindering instead of 'promoting science and useful arts' for which they are instituted, and

"*Whereas,* The synthetic chemical industry is primarily and basically dependent upon the dye-making industry, and as the dye-stuff industry cannot be successfully carried on without ample tariff protection and the liberation of the infant American organic chemical industry from the bondage of American patent laws, which favor priority and deter invention and progress and which accord American protection to foreigners which their native countries deny them, and

"*Whereas,* The present United States patent laws favor the creation of monopolies in this country by the citizens of Germany, France, Austria-Hungary, Italy, Japan and the Argentine Republic, which is denied the citizens of those countries by their own laws, and

"*Whereas,* A patent on products creates a monopoly not only on the product itself, but on all subsequent improvements in process for the making of the same, thereby destroying the stimulus for improvements and discovery through research, and

"*Whereas,* The State of Pennsylvania, rich in minerals of both inorganic and organic nature, depends in a very great measure for its industrial development upon a properly ordered and organized chemical industry—Be it therefore

"*Resolved,* That the Pennsylvania State Pharmaceutical Association go on record in requesting the Congressmen and Senators from Pennsylvania to strongly support the pending Tariff Bill, affording protection to American industries, and

"*Be it Resolved,* That a Bill be prepared for introduction in Congress through a Pennsylvania Congressman asking a change in the United States patent laws discontinuing the patenting of products but recognizing only applications for patents on processes, and, finally,

"*Be it Resolved,* That these resolutions be printed in the Proceedings and that a copy of these be forwarded to the President of the United States, the members of the President's

Cabinet, the officials of the United States Patent Office, the Senators and Congressmen from Pennsylvania, the officers of the United States Chamber of Commerce, and every State business men's and labor organization in Pennsylvania, and also to the journals of the American Medical Association, the American Chemical Society, the *Saturday Evening Post*, the *Collier's Weekly*, and to the Hon. Congressman Paige and Hill from Connecticut."

The following resolution is suggested by Professor Stanislaus:

"*Be it Resolved*, That whenever any chemical, mechanical or medicinal product is protected by a patent issued by the U. S. Government to a foreigner, and that, after the product or appliance is introduced or popularized among the American people, but its supply to the American public is withheld, causing a shortage of that product and inconvenience and suffering therefore—that such patent be cancelled and its provisions nullified once for all time."

Your committee suggests that its report be referred to the Council for consideration, and that the Council be empowered to formulate a revision of the patent and trade-mark laws incorporating provisions suitable for promoting the science and arts of pharmacy, and protecting the public, the same to be published in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION for discussion, adoption by the Council, and presentation to Congress at an early date.

Before closing your committee calls attention to the following important action of the American Medical Association in regard to patents, taken at its last annual meeting:

"In 1914, the House of Delegates passed a resolution authorizing the Board of Trustees to accept, at their discretion, patents for medical and surgical instruments and appliances, as trustees, for the benefit of the profession and the public; provided that neither the American Medical Association nor the patentee shall receive remuneration from these patents. In order to make possible the desire of the House a substitute motion was offered and adopted at the last annual meeting (June 24, 1916) which reads as follows:

"*Resolved*, That the Board of Trustees of the American Medical Association may accept, at their discretion, to hold, to control and to manage, as trustees for the benefit of the people and the protection of the medical profession, such patents on chemicals, remedial or diagnostic substances, medical or surgical instruments or appliances, or anything whatsoever that may be used in the treatment of disease or infirmity and for which a patent may be issued, as the patentee may desire to convey to the American Medical Association for the public protection and benefit; provided that the patentee shall surrender all claims to remuneration from the royalties or otherwise on such patent or patents to the Board of Trustees of the American Medical Association, which Board of Trustees shall not exact from the manufacturer or producer under any such patent or patents, any royalty or other pecuniary compensation or return therefrom, unless, in the judgment of the Board of Trustees, the exaction of such royalty shall appear to be wise and just and for the better protection of the public or the medical profession."

It has long been held by the medical profession that persons interested in the sale of medicinal products, especially in relation to commercially controlled products, cannot occupy a judicial position toward such products, and therefore that what they say concerning them must be received *cum grano salis*. In other words, physicians engaged in the manufacture and sale of medicinal products place themselves outside of the professional pale, and therefore cannot be recognized as professional men. The above resolution recognizes this principle. This doctrine excludes pharmacy from recognition as a profession, and carried to its logical conclusion, would also exclude editors of those medical journals who accept advertisements relating to surgical instruments and therapeutic agents. It would likewise place the colleges of pharmacy in a position of teaching false ideals. It must be admitted that there can be no two codes of ethics in relation to such matters,—one governing the medical profession, and the other governing the pharmaceutical profession, for medicine and pharmacy are parts of the same science, mutually dependent as professions.

We hold that the position of the medical profession in regard to this matter is incorrect, but it must be admitted that the proprietary system with its secrecy and claimed ownership of the names of medicines is incompatible with the professional ideal of the medical profession, and the same is true in regard to the patenting of materia medica products, except, perhaps, in so far as the patents relating to processes and machinery for manufacture are concerned.

Respectfully submitted,

F. E. Stewart, *Chairman.*

Members of Committee on Patents and Trade-marks:

F. E. Stewart, *Chairman.*
S. L. Hilton.
W. Bodemann.
F. H. Freericks.
J. W. England.

The Chairman: I will entertain a motion to receive the report and have it take the usual course.

Moved by L. E. Sayre, seconded by Wm. C. Anderson, that the report be approved and that it take the usual course.

Motion carried.

The Chairman: The report of the Committee contained a recommendation, that the matter of the revision of our patent and trade-mark laws be referred to Council and that the Council be requested to draft suitable laws. Shall it be referred to Council? Shall the Council be requested to draft or have drafted such suitable patent and trade-mark laws?

Wm. C. Anderson: It appears to me that it would be much better to place this work in the hands of the Committee on Patents and Trade-marks to draft the necessary laws. They probably are in closer touch with this subject than the Council. Therefore, I would move that this particular recommendation with reference to taking up the work of preparing these laws be placed in the hands of our incoming Committee on Patents and Trade-marks.

Seconded by L. E. Sayre.

The Chairman: Do I understand that this motion is intended as a substitute for the recommendation from the Committee—that it be referred to the Council? The Chair will so entertain the motion—as a substitute. It is suggested that the Committee on Patents and Trade-marks undertake to draft suitable laws.

F. E. Stewart: I am perfectly willing to accept that substitute. My only idea in putting it in the report was that I felt that the Chairman was so prejudiced in favor of what he thinks the proper thing to do, that he does not want to force the Association to accept what he has to say. I saw several of our friends who have been down in Washington and know what we are up against. We are up against powerful opposition on the part of manufacturers of chemical substances. These are men whom I do not wish to criticise, men who are as earnest and well-meaning as we are. It is merely a difference of opinion. I think, therefore, that we will have to come to the point where there will be some compromise, all sides will be heard and we hope whatever is done will be of such nature as to protect the public, pharmacy and medicine, the science of medicine, etc. That is what we are here for and that is what we are trying to do.

I have had this up for several years, as you know. I have conferred with President McKinley; the Judge of the Court of Errors, of New Jersey; Bates, of New York; Daniels, of Baltimore; the most eminent patent lawyers in the country, and I speak from the knowledge gained on this Committee for so many years.

The Chairman: It seems to me that this substitute motion is really correct in every respect, because the Committee is existing for the very purpose of doing such things.

I want to accept this opportunity, as a member of the Committee, to say that the report as made, possibly, carries a suggestion that it—that is, the Committee—advises some change in the patent and trade-mark laws which would prevent the use, and the exclusive use, of coined names by a manufacturer of proprietaries or any other article; and, insofar as the report may convey that impression, I, as a member of the Committee, want to say that I do not agree with that tendency of the report.

I believe it a duty to voice my sentiments with reference to that at this time, that the proprietor of any article of which he alone knows, or originally knew alone, the formula and method of manufacture, should have the right to coin a name and should have the exclusive right for all time thereafter to use that name. I want to go on record as so expressing my views as a member of the Committee.

L. E. SAYRE: That is a very important point, and the Chairman of this Section requested that in my report on Drug Reform I should discuss this point.

(Substitute motion carried.)

THE CHAIRMAN: The next report is that of the Committee on Drug Reform. Professor Sayre is the chairman of that Committee.

REPORT OF THE COMMITTEE ON DRUG REFORM.

Your Committee on Drug Reform, which has grown by official authorization into what may be termed a standing committee, or its equivalent, begs leave to report that during the past year some progress has been made in one direction especially, which may lead to favorable results. Your Chairman, who is an associate member of the Kansas Board of Health, was asked by that Board to make a report to that body as to the present status of "patent medicines." This action by the Board was made in order to confer with your Chairman as regards any action the Board might take with regard to the control of such agents as might be fraudulent, those that would be in violation of the provisions of the Shirley Act and those that might be sold in violation of the antinarcotic law, etc. Your Chairman made this report to the Kansas Board. In it he referred to the work of the American Pharmaceutical Association relating to the subject, particularly that of the Commission on Proprietary Medicines, to the action in New York City, to the Canadian law relating to proprietary medicines, to the British Parliamentary Committee Report relating to the whole question of secret medicines and proprietary articles and mail-order medicines, to the patent medicine question, as dealt with in the American Pharmaceutical Association's report referred to and to the voluminous literature relating to this whole subject of which, it was stated, there was enough to fill a good-sized library.

It is gratifying to state that this report of your Chairman was cordially received and that it resulted in the passage of a motion by the Board of Health that a committee be appointed, representing the Board of Health, to confer with the Kansas Pharmaceutical Association, asking that body to appoint a committee to confer with the Board of Health to consider the question of proper regulation of the sale of patent medicines, such as would be in line with public welfare and incidentally helpful to both the professions of pharmacy and medicine. The Kansas Pharmaceutical Association appointed Mr. Floyd Tilford, of Wichita, chairman, Mr. A. E. Topping, Overbrook, and your Chairman as their conference committee and empowered them to act for the state association. The committee attended the last meeting of the Board of Health in Topeka, Kansas, June 2, 1916, and as a result of the action of the Kansas Pharmaceutical Association and as a further step for work, after hearing the report of the above committee the Board of Health passed a resolution that a committee of three, representing the Board, should be appointed to confer with the pharmaceutical committee with a view of devising plans for further procedure in meeting the questions under consideration.

This movement to coöperate is gratifying. It is, as stated by one of the members of the Board of Health, the first attempt made at coöperation between pharmacy and medicine by their organization in the Middle West. Unless such coöperation is established there is likely to be a growing misunderstanding between the two professions, becoming still deeper than now obtains. This need of coöperation is emphasized by the attitude and language of not only pharmacists and many physicians but by many public men who are equally concerned in public welfare. As to the pharmacist, he feels keenly the attitude which groups of physicians are seemingly taking in assuming that they are the arbiters of all that pertains to medicine, pharmacy and health in general, under the guise of advancing medical science and public good. I am only reiterating what pharmacists and some medical men high in the profession say, that medical men cannot, with confidence, pass upon every pharmacological subject, neither from training nor experience. This is particularly true of the practising physician who cannot qualify as an experimental pharmacologist. The pharmacologist, moreover, must modify his conclusions by the experience of the clinician. The business of the expert pharmacist is to correlate the experience and findings of the expert physician and clinician and, in this capacity, his judgment must be taken into account in rendering a final decision. To say that medical men can qualify both as experts in diagnosis and in the minutiæ of the preparations and therapeutic action of drugs seems rather inclusive and monopolizing. I am sure that the thoughtful physician does not assume the attitude that pharmacists are incapable of coöperation with his profession.

I am quoting the pharmacist who makes a claim for fairness when I say he feels that pharmacy does not stand to medicine as servant to master, but as a collaborator and colleague. His profession has its mission and its function as clearly defined as medicine itself. He insists, therefore, that when matters in which it is directly concerned that it be consulted and be given due recognition.

I am voicing a sentiment of more than a small group of physicians and pharmacists when I say: It is felt that there is a tendency on the part of a group of medical men to ignore all other skilful scientists and to pass final judgment by themselves. A situation of this kind, it is said, cannot continue. The physician should accept his therapeutics even from other source than one. Interpretations cannot be made by the physician only. It is wrong for any member of the profession of medicine to control and monopolize drug regulation or be a law unto himself as to the quality of drugs and preparations he dispenses, ignoring standards under the plea that *his* particular *clinical requirements* are satisfied. The dispensing doctors' offices in Kansas are no longer immune from drug inspection, but there are those who take the stand above stated, defying the application of the pure drug section of the law because, as one prominent medical official stated, "No physician can be held to such law, as he *does not sell* the products he buys and gives to his patients."

Many prominent pharmacists and some medical men admit that there is a place for some of the so-called patent medicines as household remedies. If the formula is clearly printed and if excessive statements as to curative properties are not made, they ask, why should they be prohibited by medical legislation? Naturally it seems to the pharmacist that there is entirely too much of the feeling of paternalism on the part of the doctors which leads to monopoly.

There has been, of late, too great a tendency on the part of medical men and medical organizations to monopolize a host of subjects, from engineering to sociology, not directly concerned with the routine practice of medicine. This has been done, and legislation has been secured under the guise of promoting the so-called public health. It is felt that this contract is too large an undertaking for any one set of men. It tacitly assumes a superiority which is not warranted by facts. It is claimed that because of this condition there must be a reaction and a sane and healthy reaction between the two professions. It is hoped that the relation which has been entered upon in Kansas may become firmly established and may continue to spread to the mutual benefit of pharmacists and doctors, taking their places as mutual collaborators in the sanitary science and in all departments relating to public welfare. These are words, in substance, not of a pharmacist, but of a medical man devoting his time to medical science.

There is no question but that the prejudice and condition referred to applies to a faction only and not to the whole profession of medicine, but there should be no occasion for its existence at all. On the higher planes of professional work, pharmacists and the physicians have no difficulty in coöperating. When the lower levels of the two professions are reached we find more pronounced disturbing elements and growing prejudices. If state boards of pharmacy and medicine, state pharmaceutical and medical associations, and the national associations could bring about greater coöperation these prejudices and elements of discord would entirely disappear. Let it be emphasized again that the foregoing is a reiteration of what the writer hears from pharmacists and some physicians.

In the execution of the Shirley Act where many delicate questions must be settled, it is the opinion of the writer that physicians of proven ability, knowledge and experience may certainly be able to testify as to the merits of a given drug or preparation. But, acting on this theory in the administration of a law, which involves the question of merit of remedial agents, it is a question in his mind if it would not be fair to adopt these decisions of physicians with some sort of ratification by a jury of physicians and pharmacists, of proven ability, knowledge and experience in their departments of knowledge. This procedure would at least lead to harmony and more progress in the work of correcting evils which the law aims to remove. It would stimulate research in the right direction on the part of the pharmacist; stimulate him along broader lines of investigation and in every way be helpful in the direction of public good.

This movement on the part of the Kansas State Board of Health, your Chairman considers, is one of the best steps which it could possibly have taken in the direction it aims to work, namely, a direction toward which there will be coöperation rather than antagonism from a well-rooted prejudice. The general public, too, will, I am sure, welcome this coöperation. It is for public interest, after all, that these things are done.

In passing your Chairman wishes to say that: In provision 8 of the Modern Pharmacy Laws to be proposed for this association's consideration—a provision which recognizes the advisability of pharmaceutical and medical authorities coöperating in the execution of drug laws, meets with our approval. We have an example in the Revision Committee of the United States Pharmacopœia.

As a most valuable contribution for the Committee on Drug Reform, your Chairman has received from his associate, E. N. Gathercoal, the following, which is quoted verbatim:

"I desire to submit the following remarks on the subject of *patent medicine control:*

"The valuable and exhaustive report presented at the 1915 meeting by the Commission on Proprietary Medicines brings before the general body of pharmacists this question: What are *we* to do about the patent medicine evil?

"Restricting the term 'patent medicine' so as to include only nostrums sold under a copyrighted name and of which the ingredients or formula is not divulged, there are no pharmacists or at least very few who will not agree with me that, in one sense or another, there *is* a very formidable patent medicine evil.

"From an ethical standpoint no pharmacist should dispense any medicine or so-called medicine with the formula and ingredients of which he is not conversant. From a moral standpoint no pharmacist should sell any medicine or imitation medicine that, used according to directions by the patient, may result in injury or harm. From a commercial standpoint in a great many drug stores, the patent medicine business is the least profitable of almost any line in the store.

"The typical patent medicine manufacturer is not trained scientifically, and really knows nothing about medical treatment nor the scientific preparation of medicines. He is in the business from a purely commercial standpoint to make the medicine (?) as cheaply as possible, advertise it as extensively and as glaringly as possible, make it habit-forming if possible, and exploit it to the public to the last possible limit, caring nothing for the consequences to the retailer or consumer.

"The average patent medicine (1) is of slight medicinal value; (2) is often habit-forming; (3) has greatly encouraged self-medication; (4) is greatly over-priced; (5) has markedly lowered the profession of pharmacy in the minds of the public; (6) has but little trade value to the pharmacist.

"Shall pharmacists then take the stand that patent medicines must be eliminated altogether or that only the 'bad ones' should go? Shall this elimination or restriction be left to the legal powers of the national and state governments, or to the great medical associations, or shall pharmacists themselves take an active part?

"There is no doubt that the government, in the interests of the general public, will still further restrict the distribution of the more dangerous and worthless patent medicines.

"The American Medical Association has conducted an extensive investigation and a publicity campaign against patent medicines, largely, I am sure, from a purely public-welfare standpoint.

"Theoretically, all trade-marks or protection of formulas or processes in connection with the preparation and sale of substances for medicinal use should be discontinued. The physician, ethically at least, does not attempt to protect his discoveries in medical science. Neither should the pharmacist, as a professional man, attempt to do so.

"If 'patent medicines,' of all kinds, were thus done away with only betterment would result to pharmacy, to medicine and to the public welfare. Thus the physician, pharmacist, chemist, etc., would freely contribute, as at present, newly acquired scientific knowledge to the public. The pharmaceutical manufacturing houses would continue to offer, as at present, their full line of pharmaceuticals, including many valuable combinations of medicines which could bear a special, but not trade-marked, name, and be sufficiently protected by the firm's name. The retail pharmacist could continue to sell, as at present, a full line of ready-to-sell medicines, either prepared by himself, or for him by a pharmaceutical manufacturing concern.

"All concerned in the good of medicine should work hard to have the patent and copyright laws so changed as not to include under their action any medicinal agent. Then the ideal conditions outlined above might soon be realized.

"Notice, however, the word 'theoretically' in a preceding paragraph. *Practically,* what can the pharmacist do to-day with this problem? He can do as many thousands of pharmacists are doing now—ignore patent medicines—drop as many as possible from his stock, especially the notoriously harmful or worthless ones—relegate the few he must have to the rear of the store—allow no patent medicine advertising in his store—advertise his own preparations—educate the public to the evils of patent medicines—align himself with the other interests that are endeavoring to eliminate patent medicines."

It is needless to say your Chairman endorses his associate's views, except perhaps his recommendation in regard to trade-marked articles, which is worthy of further consideration. False claims and secrecy should not be tolerated. Eliminate secrecy and false claims and you eliminate not only patent medicines, but most all undesirable medicines.

The following letter was received from the third member of this committee:

JERSEYDALE, MARIPOSA COUNTY, CALIFORNIA.

MY DEAR SAYRE:

I have practically decided to quit the A. Ph. A. for the Society of American Bacteriologists of which I have just became a member. By that I do not mean that I have given up pharmaceutical and medical work. For some years my work has, however, been along bacteriological lines (Food and Drug Bacteriology largely), for which reason I am joining in with the bacteriologists.

Have no additional suggestions to offer on Drug Reform. . . . Will you suggest that some one else be appointed in my place, on Drug Reform Committee?

Yours very truly,

ALBERT SCHNEIDER.

Trade-Names.—One of the questions proposed for your Chairman's discussion in this report is the following: Are the exclusive ownership and coined names for chemicals, drugs and preparations, objectionable, and should they be subject to limitation and restriction?

The restaurant waiter seems to be a law unto himself when he calls for "Adam and Eve in the Garden" on an order for two fried eggs. Quite often the pharmacist in the coining of names for medicinal agents seems equally regardless of the laws of euphony.

Glancing over current medical and pharmaceutical literature I find, of medicinal articles seeking commercial recognition, the following examples of coined titles: Abican, Brobor, Caciblen, Darpin, Endotin, Filudine, Gomenol, Hexa-co-sal-in, Iodex, Jubol, Koyol, Lecebrin, Med-o-Lin, Nose-Ions, Orsedan, Phecolax, Resor-Bisol, Seng, Thaxos, Urodonal, Virol, Whiteruss, Xanal, Yogurt, Zemacol. This is simply an alphabetical list, one name for each letter of alphabet, selected from a list of about 500 unofficial articles that have been mentioned in current pharmaceutical and medical literature, and not a part of the Unofficial Remedies published by the Council on Pharmacy and Chemistry of the American Medical Association. This latter list, however, is not exempt from combinations, masquerading names which have seemingly little medical or pharmaceutical significance: for example, Larosan-Roche. One might go on almost indefinitely in multiplying these unpharmaceutical and unchemical terms.

It would seem that some kind of constructive legislation, within the professions, should be made by mutual agreement of medicine and pharmacy in coöperation with manufacturing chemists with a view of regulating titles of remedial agents. The combined effort of these bodies should bring about some desirable reform. Our recognized system of titles seems to be about as follows:

(*a*) Titles which express concisely the composition of the compound, as, for example: Acetanalid, Benzanalid, Ethylene-diamine, etc.

(*b*) Titles embracing euphonic combinations of different syllables of names of the bodies entering into the composition of the remedy; for example: Tann-Albin, Amyloform, Salipyrine, etc.

(*c*) Coined euphonic titles which are frequently of Greek or Latin origin and partake of descriptive character. These, in a way, describe either the uses, properties, or physical character of the compound; for example: Pyoktanin (pus destroyer), Thalline (referring to gum color produced by oxidizing agents), Iogen (compound, slowly producing free iodine), etc.

(*d*) Other titles of arbitrary character seemingly devised to secure trade control and as far from the article represented as is "Adam and Eve in the Garden."

We have no desire to underrate the value of this class. Many of them are said to be only a rehash (excuse the word) of well-known agents disguised by the coined name. The *name only* is under consideration. By bringing into line titles of all remedial agents with some adopted system of nomenclature, it would be not only a benefit to the public and professions interested, but would be of uniform value to all concerned. It would harm no one but offenders of ethical standards for whom this association is not seeking to legislate.

It is taken for granted that the discoverer of a new medicinal agent has certain unlimited rights. Upon what theory can any restriction or limitation be based? An attorney would show here a complicated problem no doubt, but from the point of view of a layman it would seem that the most conspicuous theory upon which any restriction may be constructed is that based on the welfare of the public and the professions interested, aside from all pecuniary considerations, but these latter cannot always be ignored. The public and the professions have unlimited rights as to their patronage of such agents and the cordiality of this patronage may be expressed in terms which may be agreed upon. It is the duty and privilege of the professions to express themselves in a channel such as is suggested: To construct a system of nomenclature by which all remedial agents may be better known and more readily identified. In this day of food and drug control it would be in harmony with public demand. It would aid those who are striving to execute the laws relating thereto, now on our statute books.

Your Chairman would therefore recommend that some measures be taken to bring about, by every possible means, a greater uniformity in the coining of names for medicinal compounds. A proper committee to serve in this capacity would surely meet the hearty approval and coöperation of pharmacists working for ends for which this association is established and maintained.

It is an encouraging feature of the times that manufacturers of so-called patent medicines are becoming aware of the demand for open formula and are endeavoring to meet it, and are also eliminating habit-forming drugs and modifying their statements in advertising.

L. E. SAYRE, *Chairman.*

Moved by M. I. Wilbert that the report be accepted and that it take its usual course. Seconded by I. V. S. Stanislaus.

Motion carried.

The Chairman: Next is the report of the Committee on National Legislation. Mr. John C. Wallace is the Chairman of this Committee, and will read his report.

REPORT OF THE COMMITTEE ON NATIONAL LEGISLATION.

Your Committee on National Legislation submits the following:

Little has been done in this form of legislation of interest to the trade.

The Supreme Court has ruled that Section 8 of the Harrison Act applies only to persons required to register under the Act, and it is likely that an effort will be made to amend the law, in order to strengthen it at this point.

Price protection is still before Congress and under existing conditions is not likely to be enacted at this Session.

Postal Regulation.—The Post Office Department has refused to give any relief in relation to the mailing of poisons. A bill has been prepared under the direction of the National Association of Manufacturers of Medicinal Products; known as the Doremus-Kerns Bill and as H. R. No. 17,396—and S. No. 6834—and introduced in both the House and Senate—amending Section 217—of the United States Criminal Code, and if enacted, will give some relief to the existing conditions. The Committee would suggest that the members get in touch with their senators and representatives and solicit their support for this measure.

The General Revenue Measure is before Congress. It is very voluminous and many amendments have been made. It is hoped that in its final passage Section B will be omitted, at least that portion which applies to the drug trade.

Senate Bill No. 6592, introduced by Senator Shafroth, of Colorado, provides that on and after January 1, 1920, the weights and measures of the Metric System shall be the legal standard weights and measures of and in the United States.

The Committee has at all times coöperated with National Association of Retail Druggists and National Drug Trade Conference Committees.

(*Signed*) John C. Wallace, *Chairman*,
S. L. Hilton,
Caswell A. Mayo,
J. H. Beal,
Charles Holzhauer.

Moved by Wm. C. Anderson and seconded by J. Fred Windolph, that the report be received and that it take its usual course.

Motion carried.

The following papers were read, discussed and referred to the Publication Committee: "An Experience Meeting," by Philip Asher; "A Plea for a Permanent Professional Tenure of the Pharmacist" (both of these papers were published in the October number of the Journal; the former, pp. 1107–1110; the latter, pp. 1094–1101).

NOMINATIONS FOR OFFICERS.

R. A. Kuever, of Iowa, was nominated for chairman, and as associates, A. W. Linton, of Washington; H. V. Arny, of New York; John Culley, of Utah. C. B. Jordan, Indiana, was placed in nomination for secretary.

The session was then adjourned.

SECTION ON HISTORICAL PHARMACY, AMERICAN PHARMACEUTICAL ASSOCIATION

HISTORICAL FRAGMENTS.*

BY EDWARD KREMERS.

15. THE APOTHECARY'S CONCESSION GRANTED IN 1796 TO IGNAZ BIECHELE BY THE BISHOPRIC OF EICHSTAEDT.

Introduction.—In his biography, the apothecary Becker, later Senator and Assessor of the provincial medical college, relates how, early in the eighteenth century, he managed to secure a concession for the establishment of an apothecary shop in Potsdam. Frederick William I was anxious to enlarge the royal residence not far distant from Berlin and, therefore, took a personal interest even in the location of a second apothecary shop. With his father, also an apothecary, and a pharmaceutical equipment, Becker had escaped over the Hessian frontier. The establishment in Potsdam, however, was another matter. Now, the king was in the habit of taking an afternoon ride out of one of the gates and returning through another. So, young Becker stationed himself at the Brandenburg gate waiting for the king's return. The king returned as usual, but apparently did not notice Becker. The etiquette of those out-of-door audiences, however, demanded that the petitioner wait until addressed by the king. So Becker returned to his post the next afternoon, when the king addressed him. After a brief interview, the aspirant for a concession was directed to go to one of the cabinet councillors who, he was informed, would assign him a respectable location.

This gentleman, however, lived in the house of the first apothecary, whose wife appears to have exercised an undue influence over him. So Becker was assigned a small shop in an out-of-the-way, narrow street. Though dissatisfied, Becker was not discouraged, and established himself. Thereupon he again posted himself at the city gate awaiting the king. Frederick William came, was in good humor, and addressed Becker from his horse, asking him how he was getting along. Not very well, was Becker's reply. Inquiring for the reason, the king was told that the location might be good enough for a tailor or a cobbler, but not for an apothecary. The king, angry with his councillor, rode up to the latter's door and called him out, giving him a scolding for the miserable treatment he had accorded Becker. When told that no other house was available in the new portion of the city to which the second apothecary had been assigned, the king told Becker to find a place for himself in the old town. Thus it came about that the second apothecary was located on the market square, opposite the royal palace, in direct competition with the first apothecary, whose wife had conspired against him. Such were the good old times.

Although the practice of the professions as well as of the trades generally was given free in Germany not long after the French Revolution, the practice of pharmacy was not included in these changes, but the system of concession by the state was continued.

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* Read before Section on Historical Pharmacy, A. Ph. A., Atlantic City meeting, 1916. This caption was adopted by the writer in 1904 (*Pharm. Rev.*, 22, p. 427) as a collective term for short accounts of matters of interest to the history of pharmacy, the first of which had been published in 1896. In order that the reader may have some idea of the scope of the topics treated in these papers, also that interested persons may have ready access to them, the catalogued list of these papers has been placed at the end of this contribution.

The average American student of pharmacy finds the practice of his calling by concessions, whether personal or real, strange to his way of economic thinking. The personal element which entered into the granting of such a concession by the state, whatever the form of government, whether king or clerical potentate, seems even stranger.

Whereas the story of Becker can readily be translated and thus brought home to the American student, though he know but little more about the German language than he does about German history, the opportunity to illustrate the granting of a concession by a document may be enjoyed by but a few teachers of the history of pharmacy, especially on this side of the Atlantic.

The University of Wisconsin has been fortunate enough to secure such a document, issued by one of the numerous clerical states of the Holy Roman Empire shortly before its dissolution by Napoleon.

The document in question was issued in 1796 by officers of the Bishopric of Eichstaedt, the bishop being also one of the *Reichsfuersten,* indeed by the last one of a long line of bishops, namely Joseph I, Count of Stubenberg, who ruled over Eichstaedt from 1790 to 1802.

Of the 264 lay and the 65 clerical states that constituted the Holy Roman Empire between 1648 and 1803 many are no longer known even to the student of general history. Hence it may not be amiss to state that Eichstaedt owes its origin to St. Boniface. Having received a grant of land from Count Suitger, he in 745 ordained Willibald as bishop. Eichstaedt flourished because of the pilgrimages to the grave of St. Willibald, to which relics were added the bones of St. Walpurgis. Thus as early as 908 Eichstaedt enjoyed the rights of a city with the privileges of its own revenue, mint and market. In 1305 the bishopric inherited the extensive estates of the Counts of Hirschberg, thus becoming one of the largest foundations of the empire. In 1785, *i.e.,* shortly before the document, which is the immediate cause of this account, was issued, Eichstaedt comprised a territory of 1100 square km. with 57,000 inhabitants distributed over 8 municipalities, 14 market places and 200 villages. Its resources were 250,000 florins. It was secularized in 1802.

As to the practice of pharmacy in Eichstaedt, it appears to have taken the usual course to be expected in a monastery that later developed into a clerical state. Sax, in his *Bischoefe und Reichsfuersten von Eichstaedt,* informs us that the *domkapitelsche Apotheke, i.e.,* the apothecary shop of the cathedral chapter, was located at the entrance to the mortuary in the east part of the cathedral (p. 279). The same historian of Eichstaedt informs us that as early as 1070 one of the canons, a Reginold *medicus et presbyter,* was manager of the *Potionarium.* At that time, so at least we are informed, prayers were dispensed as well as medicaments. These prayers had to be repeated by the patient during cupping or while in the bath, etc. Later, the canons took less interest in natural history and elected a *Provisor, i.e.,* manager of the dispensary, from the laity. However, apothecary as well as physician were always appointed by the cathedral chapter. It is one of these appointments that the document under consideration records.

For a better understanding of the situation, however, it will be necessary to go back once more. The origin of the apothecary shop as a monastic dispensary has already been noted, also the transfer of the immediate management of the dispensary from a member of the brotherhood to a lay manager. While the use of the dispensary was not restricted to the brotherhood, apothecary as well as physician had to promise on oath not to leave the city so long as a member of the cathedral chapter was sick. The next step toward secularization was taken in the seventeenth century, just when does not appear to have been recorded. This much, however, is known, that in 1621 Balthasar Richter was the last lay *Provisor.* In 1700 Franz Palm bought the apothecary shop for 5300 fl., from whom it is not stated. In 1759 Joseph Duscher sold it to Johann Neponuk Biechele, a citizen of Eichstaedt. It is to the son of this purchaser that the concession recorded in our document was granted by the chapter in 1796. A descendant of this family is in possession of the secularized apothecary shop to-day (Sax, p. 279[1]), the sale of the cathedral pharmacy having been effected by Bavaria in 1807 (p. 762). Thus we see that the history of this place, which we can trace, though but roughly, through well nigh a thousand years, has been that of one type of the German apothecary shop, viz.: from the monastic dispensary to the public pharmacy in private possession.

By way of supplement to this imperfect picture, it may not be out of place to point out that in 1727, *i.e.,* some decades after the sale of the cathedral pharmacy, a competitor was established by the chapter in the form of a *Hofapotheke,* under the direction of the body physician, Georg Kupfer. At the time of the secularization, this was also sold by the state of Bavaria (p. 279[1]), more particularly in 1808 (p. 763). This second apothecary shop is now also in possession of the Biechele family.

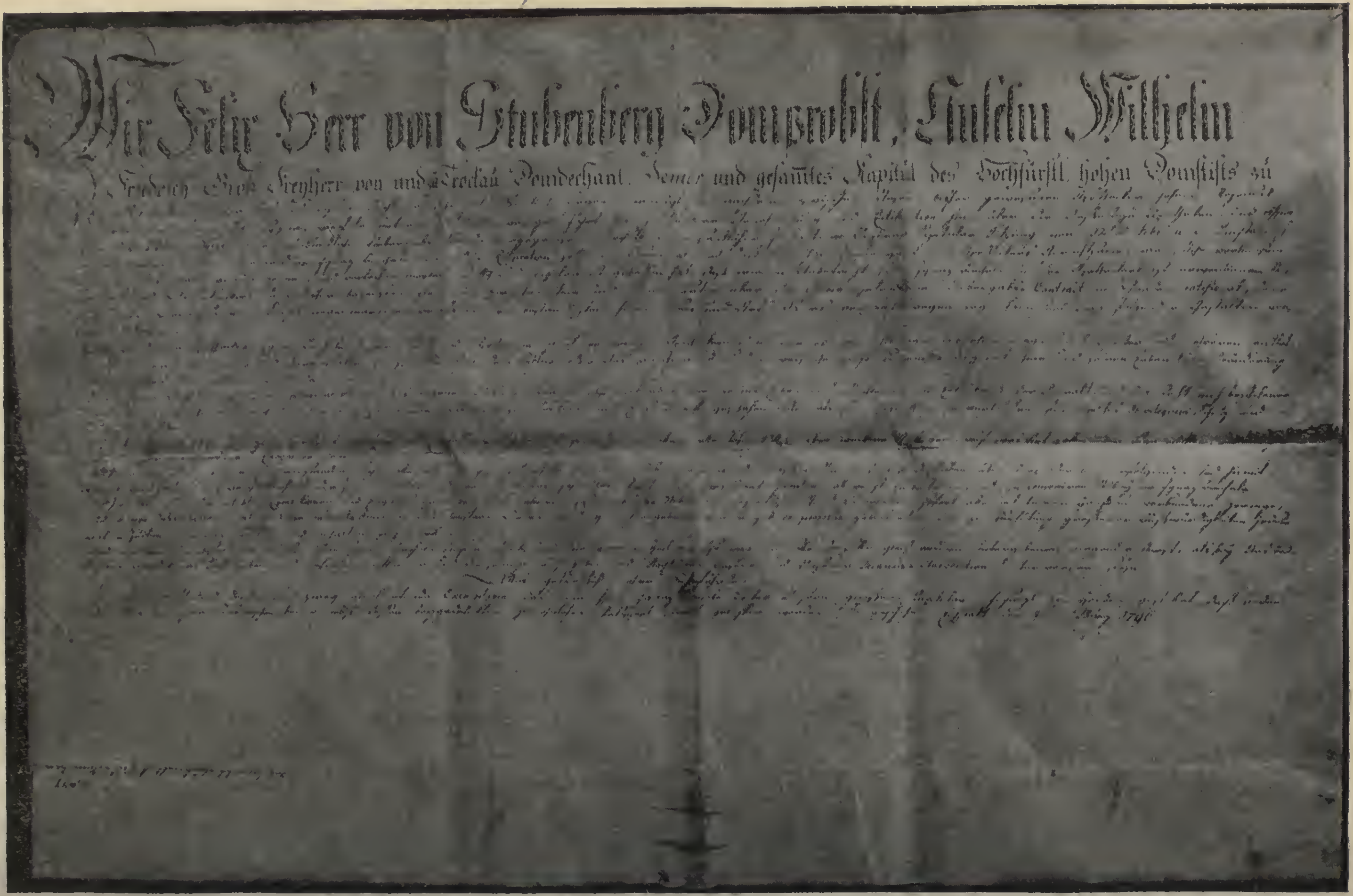
A Max Biechele, born in Eichstaedt in 1839 and, from 1869 on, proprietor for about thirty years, developed considerable literary activity. Thus he wrote a number of pharmaceutical texts (Schelenz, p. 699) and for several years (from 1876 to the beginning of the eighties) edited the *Apotheker-Zeitung, Korrespondenzblatt fuer Apotheker, Aerzte, Drogisten und Chemiker,* founded by Kohlmann in 1866 and edited from Leipzig. (It is not the precursor of the present *Apotheker-Zeitung,* the organ of the German Apothecaries' Society, but was published in opposition to this organization.) (Schelenz, p. 722; *Ph. Ztg.,* 1872.)

The Franchise.—In addition to the reduced facsimile reproduction of the document, the original text and its translation are herewith given. Comments on the appearance of the document itself are quite unnecessary. The text, however, in spite of the fine handwriting, does not afford ready reading. Not only is the construction very involved, but the German is neither modern nor classical German, but legal German of the close of the eighteenth century. In the English translation an attempt has been made not to destroy the peculiarity of the language, though it was quite impossible to render it into legal English of the same period.

For the benefit of the reader, the preamble has been placed between brackets and the principal idea expressed underscored. If the underlined part of the first paragraph of the English translation be read first, also if the preamble, placed between brackets, be read by itself, a second reading of the first paragraph will make it quite intelligible, whereas without this aid, it is rather difficult to follow the involved construction.

A word concerning the peculiarity of the Italics may not be out of place. A close comparison with the original will reveal that the entire word is not always italicized, but that its ending may be in German script. Furthermore, not all abbreviations are indicated as such by a period.

Herewith follow, in double column for the sake of more ready comparison, the copy of the original German text and its translation.



Wir Felix Herr von Stubenberg Domprobst, Anselm Wilhelm
Friderich Ernst Freyherr von und zu Trodau Domdechant, Senior und geſamtes Kapitul des Hochfürſtl. hohen Domſtifts zu

Certificate of Apothecary's Concession Granted in 1196 to Ignaz Biechele by the Bishopric of Eichstaedt.

Wir Felix[1] Herr von Stubenberg Domprobst,[2] Anselm Wilhelm Friedrich Gross Freyherr von und zu Trockau Domdechant,[3] *Senior,*[4] und gesammtes Kapitul des Hochfuerstl. hohen Domstifts[5] zu Eichstaett[6] etc. bekennen fuer uns und unsere Nachkommen, hiemit oeffentlich gegen maenniglichen, nachdeme zwischen Unsern bisher gewesenen Apothecker Johann Nepomuk Biechele[7] und seinen Sohn Ignaz Biechele unterm 23ten *Dec.* vorigen Jahrs bis zu Unserer Genehmigung, und *Ratification* hin, ueber die diesseitige Apotheken, und *respve* sein des Vaters *Officin* eine verbuendliche Uebergabs-Abrede vorgegangen, derselben wesentlicher Innhalt in Unserer Kapitular Sitzung vom 12ten *Febr. a. c.* umstaendlich vorgekommen, und dann obbemeldter Ignaz Biechele um gdge *Ratification* sothaner Uebergab, und dass Wir ihme Unser Haus, und Apotheckers-Gerechtsame, wie solche vorhin sein Vater von Uns gehabt, gnaedig goennen, und verleihen moegten, unthg. und angelegnist gebethen hat, dass wir in Anbetracht sein Ignaz Biechele in der Apotheckerkunst erworbenen Wissenschaft, und Geschicklichkeit, dann bisher bezeigten Fleiss den zwischen ihme, und seinem Vater ueber die *Offizin* getroffenen Uebergabs-*Contract* in Gnaden *ratifici*rt, deme auch Unsere Gerechtsame in Kraft gegenwaertigen Briefs, in der bestaendigsten Form, Weis, und Art, als es von Rechtswegen seyn kann, und mag, folgender Gestalten verliehen haben, dass

Erstlichen Unser Apothecker Ignaz Biechele Unsern Schutz und *Privilegium,* gleich den vorigen Apotheckern, und wie es von Rechtswegen beschehen mag, und hierunter mit mehreren enthalten, hiermit ertheilen, also und dergestalten, dass Wir, ohne dem *Publico,* oder Uns anscheinend- und erweissliche grosse *Damnificir*ung mit ihme und seinen Erben keine Abaenderung machen sollen, und wollen. Und da

2do er Ignaz Biechele das *Corpus pharmaceuticum* aus eigenen Mitteln erkauft, also verbleibet ihme, seinen Erben und Nachkommen die Erlaubniss, der Gewalt, und das Recht, nach beschehener Voranbiethung welche uns nach dem hiemit geziemenden jedesmaligen Vorkauf, und Einstandrecht geschehen solle, als sein Eigenthum zu verkaufen: fuer welches *Privilegium,* Schutz und Befugniss derselbe

3tio nebst dem *ad* 45 fl gesetzten Hauszins, weiters *pro recognitione* alljaehrlich 75 fl.,

We, Felix, Lord of Stubenberg, Cathedral Provost; Anselm William Frederick, Grand Baron of and at Trockau, Cathedral Dean; Senior; and entire chapter of the sovereign exalted bishopric of Eichstaett; etc. herewith publicly proclaim for ourselves and our successors to all concerned that [after a binding agreement, under date of Dec. 23, of last year, had been made between our heretofore apothecary Johann Nepomuk Biechele and his son Ignaz Biechele, concerning the transfer of the local apothecary shop and of his father's officine respectively, subject to our acceptance and ratification, and after the essential contents of such agreement had been considered in detail in the session of the chapter on the twelfth of February of this year, at which the above Ignaz Biechele respectfully and solicitously prayed for the ratification of the aforesaid transfer, also that we might graciously confer on and grant to him our house and apothecary's franchise, which his father had previously held from us;] in view of his, Ignaz Biechele's knowledge acquired in the art of pharmacy and his skill, and further his diligence shown thus far, we have graciously ratified the contract of the transfer of the officine between himself and his father and have granted said franchise in testimony whereof this document is duly signed and sealed, to wit:

Firstly, that like to former apothecaries we grant our apothecary Ignaz Biechele our protection and franchise in accordance with law and custom, and with the reservations mentioned hereafter, and that we shall and will make no change (in our contract) so far as he and his heirs are concerned; provided, however, that no apparent or real damage result from the continuance of the present contract either to the public or to us.

2nd. Inasmuch as said Ignaz Biechele has purchased his stock with his own means, the privilege, power and legal right shall be retained by him and his heirs to sell it as his property, provided, however, that in each and every instance he shall ask us for the first offer, in accordance with the privilege of option and pre-emption that is due us. For this franchise, protection and privilege (the said Ignaz Biechele) shall

3rd. Pay 75 florins annually by way of compensation in addition to the 45 florins

mithin in allem alle Jahr 120 fl., ohne weitere Auflagen, auf was Art selbe immer seyn moechten, verabreichen solle, welcher Hauszins, und *Recognition* aber

4^to^ nur auf solang gemeint und verstanden seyn solle, als sein Ignaz Biechele Vater am Leben seyn wird; inmassen Wir Uns auf desselben ueber kurz oder lang erfolgenden Tod hiemit *expresse* vorbehalten, nach Beschaffenheit der Zeit und Umstaende ein weiteres jaehrliches Pacht- und *Recognitions-Quantum* allererst zu bestimmen, und zu *conveni*ren. Wobey er Ignaz Biechele

5^to^ ob Wir gleich die *notable Reparation*en und Ergaenzungen ueber Uns nehmen, jedannoch das Gebaeu in wesentlichen Stand zu erhalten, sofort alle mit keinem Hauptbau verbundene geringe und *ex ipsa inhabitatione, vel ex Culpa inhabitantium* an den Fenstern, Oefen, u. d. g. sich ergebende Baumaengel *ex propriis* zubestreiten, und zu Verhuetung groesserer Busswuerdigkeiten jedesmal in Zeiten zuwenden schuldig und gehalten seyn solle.

Und wie Wir nun obstehender Massen ihme Ignaz Biechele Unsern Schutz und *Privilegium* ertheilen; also mag und solle derselbe gleich andern untergebenen nirgend anderst, als bey Uns, und Unserm Domdekanat Recht geben, und nehmen, mithin er und die seinigen, auch Erben und Nachkommen Unserer, und Unserer *Decanat*s *Jurisdiction* unterworfen seyn.

Alles getreulich, ohne Gefaehrde.

Zu mehrerer Urkund dessen sind zwey gleich lautende *Exemplari*a, das eine Ihme Ignaz Biechele unter Unserm groessern Kapitular-Insiegl zu Handen gestellet, dass andere aber Uns von ihme unterschriebener nebst dessen beygedrueckten gewoehnlichen Pettschaft zurueck gelassen worden. So geschehen Eichstaedt den 4^ten^ Maerz 1796.

rent for the house, hence a total of 120 florins annually, without further assessments of whatever nature they may be.

This house rent and compensation, however, are to remain in effect only so long as his Ignaz Biechele's father lives. After his death, sooner or later, we expressly retain to ourselves the right to demand an additional sum for annual rent and compensation to be determined according to time and circumstances.

5th. That, whereas we take upon ourselves the responsibility to make larger repairs and additions, said Ignaz Biechele is to maintain the building in proper condition and to cause all repairs resulting from wear or tear, or from the negligence of the tenants, on windows, stoves etc. that do not involve changes in the house, to be made at his own expense, also to prevent the necessity of larger repairs.

Inasmuch as we grant said Ignaz Biechele our protection and franchise, he shall, like our other subjects, neither give nor seek justice elsewhere than with us and the college of our Cathedral Deans, moreover, he and his family, also his heirs and descendants, shall be subject to the jurisdiction of our said college.

The above is a true copy, to the best of our knowledge and belief.

This agreement has been issued in duplicate, one copy, to which our large chapter seal has been attached, has been issued to said Ignaz Biechele; the other copy has been left with us after his signature and customary seal have been affixed thereto. Thus done in Eichstaedt, March 4th, 1796.

REFERENCES.

[1] Felix: In *Die Bischoefe und Reichsfuersten von Eichstaedt,* Sax mentions both Josef and Felix von Stubenberg as the only two relatives who were provided for in the *Domkapitel* by Raymond Anton, Count of Strasoldo, their uncle (p. 711), who was the sixty-sixth Bishop and Reichfuerst of Eichstaedt from 1757 to 1787 (p. 653). Whereas the older brother became the sixty-eighth and last Bishop and Reichsfuerst, known officially as Joseph I, Count of Stubenberg, from 1790 to 1802, the younger brother as Domprobst became his right hand (p. 715). Even after secularization of the *stift,* Felix was appointed *Weihbischof* and retained the position of *Domprobst* with a salary of 2500 fl. (p. 780).

[2] *a. Probst,* Eng. provost, from the ecclesiastical Latin term *præpositus,* one who is placed before, *i.e.,* at the head as chairman or presiding officer.

b. Dom, probably from the Latin *domus,* house, the *ecclesia cathedralis* or *ecclesia*

major, i.e., the principal church of a district, characterized by its extent and architectural grandeur. Like the use of the word cathedral (from *cathedra,* chair, *i.e.,* of the bishop), the word *dom* came into use in Germany as late as the eighteenth century.
c. Domprobst, inasmuch as the *Dom* had its college of canons, the Domprobst is the presiding officer or officer of first rank of the college or chapter (Ger. *Kapitel*).

[3] *Dechant-Dekan,* Eng. dean, Lat. *decimus,* in the Roman military system a leader of ten men. Hence in clerical history originally the presiding monk over a group of ten monks. Later the term was applied to a variety of presiding church or monastic officers. Thus in the chapter (Ger. *Kapitel*) atached to the *Dom,* the *Domdechant* is the second officer in rank next to the *Domprobst.* In the absence of a *Probst* the *Dechant* is the first officer of the *Dom.*

[4] *Senior,* comparative of *senex,* genitive *senis,* the older one (or oldest), an honorary designation, the presiding officer.

[5] *Stift,* a charitable foundation, such as the chapter attached to the *Dom.* Originally a purely clerical institution, after the fourteenth century a distinction was made between the secular canons and *canonici regulares* who had taken the oath of monkhood and who either lived together in monasteries or who were used in connection with the cathedral (*Dom*) service but who had no vote in the chapter. Previous to their secularization in 1803 many of these *Stifter* (among them Cologne, Eichstaedt, Basel), abbeys, etc., possessed state rights in the Holy Roman Empire and had a vote in the Reichstag.

[6] Eichstaedt, now a Bavarian district, also a city, the principal community of the district, owes its origin to St. Boniface, who in 745 installed Willibald, the Anglo-Saxon, as bishop over the territory granted by Count Suitger. The pilgrimage made to the relics of St. Walpurgis, brought thither in 870, and to the grave of St. Willibald developed the place which acquired city rights as early as 908. In the course of time it became one of the wealthiest *Hochstifter* of Germany. In 1785, *i.e.,* eleven years before this document was issued, it covered an area of 1100 square kilometers, with 57,000 inhabitants in 8 small cities, 14 markets (*Marktflecken*) and 200 villages, etc. The detailed history of Eichstaedt is to be found in two treatises: Lefflad: *Registen der Bischoefe von Eichstaedt,* 2 vols., Eichstaedt, 1871–1874. Sax: Die Bischoefe und Reichsfuersten von Eichstaedt, 745–1806, 2 vols., Landshut, 1884–1885.

[7] Biechele: Neither Schelenz nor Frederking nor Philippe-Ludwig mentions either father or son. Schelenz, *Geschichte der Pharmazie,* p. 699, mentions a Max Biechele, who was born September 11, 1839, in Eichstaett, and who became proprietor of the local apothecary shop in 1869. He is known principally as an author of condensed pharmaceutical compilations and of the "Legal Regulations for Bavaria." For the information gleaned from other sources, see the Introduction.

Acknowledgments.—As already stated, the parchment document is the property of the Library of the University of Wisconsin. The manuscript text of the document, while written in a fine hand, is composed in the legal German jargon of the eighteenth century, hence affords more than ordinary difficulties in translation. For overcoming these difficulties, the writer is greatly indebted to his colleague, Dr. Edwin Roedder, Associate Professor of German Philology. In the revision of the English translation, the writer was kindly assisted by another colleague, namely Professor Eugene Gilmore of the College of Law.

LIST OF PAPERS THAT HAVE PRECEDED THE FOREGOING CONTRIBUTION.[8]

1. Common Salt Mixture. *Ph. Rev.,* 14, p. 107. A description of two packages of disinfectant such as were used at Camp Randall, Madison, Wisconsin, during the Civil War. One of these had been put up by the U. S. Army Laboratory, the other by E. R. Squibb.

2. Early Phases in the Development of Pharmaceutical Legislation in Wisconsin. *Ph. Rev.,* 15, pp. 201, 223, 240; 17, pp. 56, 136, 283, 223. Reprinted in pamphlet form, p. 43,

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[8] See footnote, first page of Historical Fragments (contribution No. 15).

by the Pharmaceutical Review Publ. Co. of Milwaukee. A collection of documents with brief comments. With the aid of newspapers and the records of the common council of Milwaukee it was made possible to give an account of the history of the first local pharmaceutical legislation which served as a stepping stone to state legislation a few years later.

3. The Letter A: Its Meaning in Pharmaceutical Literature. *Ph. Rev.*, 18, pp. 112 and 349. A preliminary report of a larger compilation ultimately to include all of the letters of the alphabet.

4. The Apothecary and the German Totentaenze. *Ph. Rev.*, 17, p. 290.

5. Christ as Apothecary. *Ph. Rev.*, 18, p. 338; *ibidem,* 19, p. 18.

6. *Ex Libris.* Reproduction of pharmaceutical book-plates: that of the Swiss Pharm. Society (*Ph. Rev.*, 18, p. 440); Pharmaceutical Institute of the University of Bern (*ibidem,* 18, p. 484); of Prof. A. Tschirch of Bern (*ibidem,* 19, p. 95); of Dr. Oesterle of Bern (*ibidem,* p. 239); of Dr. E. O. Merck of Darmstadt (*ibidem,* 21, p. 457); of Dr. Louis Merck of Darmstadt (*ibidem,* p. 458).

7. Pharmaceutical Legislation in New York During the Early Seventies. *Ph. Rev.*, 21, p. 482; 22, p. 31. One of the principal objects in publishing these documents was to bring out, if possible, other documents that might be hidden, and to induce those who lived through this episode to write their reminiscences of the period after a perusal of the editorials and communications which were written while feeling ran high.

7. Drugs of Primitive Peoples. *Ph. Rev.*, 22, p. 241. An illustrated review of Max Bartels, *Medizin der Naturvoelker,* so far as drugs and drug containers are concerned.

8. Borneo Camphor. *Ph. Rev.*, 23, p. 7. An illustrated account of the primitive methods of collection of this valuable product and of the superstitions concerning it held by the Malay collectors, based largely on W. H. Furness, *The Head Hunters of Borneo.*

9. Pharmaceutical Notes from Cuming's *Tour of the West.* *Ph. Rev.*, 23, p. 15. Notes taken from the account by this Englishman of his trip down the Ohio in 1808 and republished as vol. iv of *Early Western Travels,* edited by R. G. Thwaites.

10. Pharmaceutical Notes from the Diary of André Michaux. *Ph. Rev.*, 23, p. 53. The accounts of the travels of the elder Michaux, between 1793 and 1796, as presented to the American Philosophical Society by his son in 1824 and republished in vol. iii of *Early Western Travels,* afforded gleanings to American materia medica.

11. Pharmaceutical Notes from the Journal of François André Michaux. *Ph. Rev.*, 23, p. 86. The Journal of the younger Michaux, also republished in vol. iii of *Early Western Travels,* likewise afforded gleanings of interest to our materia medica, even more numerous than the diary of his father.

12. Harris' *Journal of a Tour.* *Ph. Rev.*, 23, p. 92. This constitutes the third reprint published as vol. iii of *Early Western Travels,* edited by Thwaites. The complete title is *The Journal of a Tour into the Territory Northwest of the Alleghany Mountains, Made in the Spring of the Year.*

13. Drugs of North American Indians. *Ph. Rev.*, 23, p. 130. A catalogue of medicinal plants and their uses found in the list of economic plants of O. T. Mason's account of *The Ray Collection from Hupa Reservation,* as published in the *Smithsonian Report* for 1886. Part I, pp. 205–239.

14. Pharmaceutical Notes from Nuttall's *Journal of Travel into the Arkansas Territory.* *Ph. Rev.*, 26, p. 19. Gleanings for a *Materia Medica Americana* from Nuttall's diary (1819), republished in vol. 13 of *Early Western Travels,* edited by Thwaites.

Other historical articles not included in the above list are:

1. The Reber Collection. *Ph. Rev.*, vol. 25. *a.* General description, p. 161; *b.* Pharmaceutical vases of Italian faience and majolia, p. 193; *c.* Some French pharmaceutical pots, p. 236.

2. Johann David Schoepf. Introduction to *Materia Medica Americana,* republished as *Bulletin* No. 6, 1903, *of the Lloyd Library.*

CONTRIBUTED AND SELECTED

A PLEA FOR SANITY IN DRUG REGULATION.*

BY J. H. BEAL, URBANA, ILL.

It certainly affords me great pleasure to be the bearer of a message of good will from the American Pharmaceutical Association to this, the 42d annual convention of your organization.

During the 65 years of its existence, the American Pharmaceutical Association has devoted itself mainly to the scientific and educational development of pharmacy; to the cultivation of the sciences contributing to the purity and quality of drugs and medicines, and to improvements in the methods of manufacturing and dispensing them in appropriate form for medicinal use.

Your association, on the other hand, has devoted itself mainly to the commercial and economic development of pharmacy; to the assemblage in a large way of the products of earth, air and sea which have medicinal use, and their transmission to those who make the final distribution of these articles to the consuming public.

Not only is it important that our two associations should enjoy a good understanding with each other, but if I do not misread the signs of the times, the day is not far distant when all of the associations which represent the several divisions of the drug trade will acutely realize the necessity of having a common purpose and policy in the defense of their legitimate business interests.

Nowhere is the necessity for a good understanding between all branches of the drug trade greater than in the field of legislation.

Honesty and good intentions are no longer sufficient to protect us from collision with the laws, or with the multifarious and frequently conflicting regulations prescribed by the boards and bureaus into whose hands the interpretation and administration of the laws are given.

To the thoughtful individual, a statute is merely the formal expression of the well-settled convictions of the majority, intended to compel the obedience of that minority of the community which is unwilling to obey the unassisted force of moral and civic obligation. To the radical reformer, the statute law is a convenient instrument for compelling the many to accept his peculiar views of civic duties, and instead of appealing to the slow and tedious process of education, he endeavors by furious assaults upon the law-making body to impose his will upon the majority.

It is only in theory that many of the new laws annually placed upon the statute books represent the settled convictions of a majority of the citizens of the state. Not infrequently they represent the will of a small but compactly organized minority who have pressed their special measures upon the law-making bodies with such vehemence that they have seemed to represent the voice of the many.

The drug trade is not opposed to reform as such. It realizes that old institutions and old methods must constantly be remodelled to meet new conditions. It recognizes and has had its full share in developing the modern idea of social justice. It accepts as fundamental the doctrine that no man has the right to pursue his calling in such a manner as to cause either moral or physical injury to his fellow citizens, or to profit by a traffic in their frailties or passions.

If I understand the spirit of the American drug trade, it aims at the middle ground of moderation represented by legislation that will protect the weak and incapable from reckless exploitation, but will avoid that excessive paternalism which would deprive the average normal citizen of reasonable freedom of action, and tend to loosen his sense of legal and moral responsibility to society and the state.

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*Address as delegate from the American Pharmaceutical Association to the National Wholesale Druggists' Association, Baltimore, Md.., October 2, 1916.

The Burdens Imposed by Reformatory Legislation.—One disagreeable feature of modern reformatory legislation is that it invariably brings in its train a fresh set of evils in the shape of increased burdens upon moral and law-abiding citizens whose habits and methods of business are not a menace to the peace and good order of the community, and who are in no sense responsible for the abuses that are sought to be corrected.

Some of these burdens are, of course, inevitable. They constitute a part of the overhead cost of modern civilization, and must be accepted with resignation.

There is perhaps no such thing possible as a one-sided reform, or a reform which does not bring with it some qualifying disadvantage. There is always a balance to be struck between the good results hoped for from new legislation and the injury sure to follow from the imposition of fresh burdens upon society at large; and in every case the vital question we have to settle is, How far are we justified in interfering with the comfort and well-being of the whole body of citizens in order to protect the comparatively small number of delinquents against injury to themselves through weak or vicious yielding to their own evil propensities?

These delinquents are the debtors of society, not its creditors; and yet there is a disposition on the part of certain doctrinaire reformers to treat them as if the state owed them some peculiar and exalted duty of protection above that which it owes to the whole body of normal, moral and well-behaved citizens.

In the older reformatory legislation the individual who actually committed the offense was made the principal object of the penal clause, and was the party who was sought out and punished—not the man who made or sold the instruments with which the crime was committed, unless the latter had such guilty knowledge of the purpose for which they were to be used as to make him a partner in the crime. Gradually and unconsciously a new element has crept into the method and theory of reformatory legislation, and this is to excuse or minimize the offense of the individual who commits the actual fault, and to place the burden of guilt and the penalties chiefly upon those who supply the instrument with which the fault is committed.

When such instruments are intentionally designed or sold for a wrongful purpose, the penalty is not misplaced; but when they are articles which serve a large and important usefulness in life and have a legitimate application in the business of the world, and their occasional wrongful use is due to a perversion of the purpose for which they were designed, then any excessive or unnecessary restrictions placed upon their manufacture and sale impose an unjust burden upon society as a whole.

The Alcohol Question as It Affects Pharmacy and Medicine.—The evils resulting from the intemperate use of alcoholic beverages have aroused a tremendous volume of sentiment in favor of restrictions upon their sale and use, ranging from propositions for strict regulation to the total prohibition of their manufacture and sale for any purpose.

Unfortunately for the peace of the drug trade, alcohol has a peculiar and highly important use in the manufacture and preservation of medicines entirely separate from its qualities as a beverage. For generations efforts have been made to find an efficient substitute for it in the extraction of drugs, but without success. Its use in the manufacture of medicinal preparations is not a matter of choice, but of necessity, and of hard necessity too, since tax-paid alcohol is a most expensive solvent.

For example, there are a number of undoubtedly legitimate preparations, such as the common flavoring extracts and essences, the so-called perfumery extracts, certain of the official elixirs, spirits, tinctures, etc., in which the use of alcohol is indispensable to hold the active constituents in solution, and no other known solvent will take its place. The Pharmacopœia prescribes the proportion of alcohol which must be used in these compounds, and the food and drug laws make it a criminal offense to either omit that solvent or to diminish the prescribed quantity.

These preparations used for the purposes for which they are intended will never create a taste for alcoholic beverages, and if alcohol had never been used in any other form, there would be no modern temperance problem; yet, some so-called temperance laws go so far as to include these useful and perfectly proper preparations in the same category with brandy and whiskey, and subject their sale to the same restrictions, and some temperance advocates go so far as to maintain that even the strongly poisonous alcoholic tinctures and fluidextracts should be put under the ban because it is possible, with a little ingenuity, to distil off the alcohol.

Why should the proper use of preparations of the above classes by tens of thousands of moral, law-abiding citizens be interfered with because of their possible occasional beverage use by a few, and these few only among those who have already abused the privilege of citizenship? Why should the thousands of respectable druggists be subject to this restraint upon their business because a few have conducted saloons disguised as drug stores?

Legislation of the kind I have described has a tendency to go beyond all reason in its restrictions. It is to-day a crime in one or more states for a druggist to keep beef, iron and wine, or similar articles, in stock for any purpose whatever. In at least one other state it is illegal for a druggist to obtain pure alcohol even for manufacturing purposes. At nearly every session of the state legislatures, bills are introduced tending to prohibit the sale of alcohol-containing medicines, whether adapted for beverage use or not.

The Habit-forming Drug Problem.—A similar situation, with a new set of burdens for the drug trade and a new set of inconveniences for the public, has grown out of legislation intended to correct the abuses resulting from the unregulated sale of habit-forming narcotic drugs. While these abuses never amounted to more than a small fraction of that indicated by sensational press reports, there was abuse, nevertheless, and the drug trade has taken the lead in preparing and procuring the enactment of laws designed for its correction, and has cheerfully assumed the added expense and increased business detail imposed by such legislation.

The federal, or so-called Harrison Law,[1] covers only coca leaves and opium and their respective preparations, alkaloids and derivatives, because these are practically the only drugs which have been misused to any great extent within the United States. This law, like the anti-narcotic laws of the States, exempts from its provisions certain well-known preparations which have a domestic use, as remedies for summer diarrhea, cough remedies, anodyne liniments, etc., which contain small proportions of opiates in combination with other drugs, the use of which, in the manner directed, is not at all likely to create a drug habit, and which, because of the small amount of narcotics they contain, are never used by regular habitués, except when in dire distress due to their inability to procure the more potent, unmixed and undiluted drugs.

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[1] The Harrison Law was not intended, as popularly supposed, to regulate the use of habit-forming drugs by individuals, but to enable the state laws to be effectively enforced by furnishing the means whereby the supply of these drugs through illicit dealers could be traced. The provision declaring it unlawful for certain individuals to have the drugs in their possession was inserted as a concession to certain doctrinaire reformers who could not be otherwise appeased, and the invalidation of this provision, by a recent decision of the United States Supreme Court, does not in the least impair the law's efficiency for the primary purpose for which it was intended.

Practically all cases of drug habituation have been created through the taking of the unmixed opiate for a considerable period of time, for the relief of a more or less chronic ailment. If any habitués have been created through the use of the exempted preparations, they are so few as to be negligible. Most of such alleged cases, when carefully investigated, will be found to be based on manufactured or insufficient evidence.

As was to be expected, when drug fiends found themselves unable to obtain their usual supplies of opium and morphine, they began a desperate hunt for real or alleged substitutes. Though no exact substitutes were to be had they were able to obtain some measure of relief by the use of other drugs not included in the law, or by the consumption of large quantities of diarrhea mixtures, etc.

Certain doctrinaires and theorists opposed the enactment of the Harrison Law, because, as they alleged, it did not go far enough, and before the ink was dry upon the statute book, they began a propaganda for its mutilation and amendment to fit their particular ideas. Instead of giving the new law a fair try-out under intelligent and impartial enforcement, they propose to increase the restrictions by adding many new items to the list of prohibited drugs and by striking out the present list of exempted preparations.

If these changes are made in the Harrison Law, they will multiply enormously the details which must be attended to by physician and pharmacist, add immensely to the trouble and expense of doing business, and will deprive the general public of the opportunity of obtaining inexpensive remedies for simple ailments without greatly increased trouble and expense.

The beneficial effects of the Harrison Law have already been great. There is reason to believe that few, if any, new victims of a drug habit are being created, while it is known that very many of the former victims have either been cured or are taking treatment for the habit. If the present rate of progress continues, and if the federal law is properly supplemented by wisely enforced state laws, it will not be long until the abuse of habit-forming drugs will be practically non-existent within the United States. Why not let well enough alone? Why not give the existing law a fair trial before further experimental tinkering with it?

An incident that occurred in an Illinois town during the past winter illustrates how the emotional reformers reach the conclusion that section six of the Harrison Law should be repealed, and that all sorts of other drugs should be brought within the prohibitions of that law. In the Illinois case a woman who was a confirmed morphine habitué, being unable to procure the accustomed drug, undertook to satisfy her craving by the use of the supposed substitutes for morphine, such as syrup of white pine and similar preparations. Failing to obtain the desired relief from any of these, the poor victim finally committed suicide by cutting her throat. Practical people would be likely to conclude from this occurrence that the law in its present form exercises a pretty effectual restraint upon the improper sale of habit-forming narcotic drugs. Not so the coroner, however, who gravely decided that the woman had become insane through the taking of a syrup of white pine, and recommended that the sale of this preparation, and of the other substitutes which she had vainly taken, should be entirely prohibited by law.

An Erroneous Theory of Reform.—Naturally it will be claimed that as long as certain preparations containing alcohol and narcotics are exempted from the provisions of the anti-liquor and anti-narcotic laws, some unscrupulous doctors and druggists will make use of such exemptions as a means of evading the law.

Such evasions I believe can be cured by other methods than the total prohibition of the sale of the articles concerned. But even if they could not be cured, why should thousands of conscientious physicians and pharmacists be unjustly hampered in their perfectly proper professional and business transactions because a limited number in each class are guilty of misconduct? Or, putting the professional and business interests of physicians and pharmacists entirely aside, why should tens of thousands of sober and temperate citizens be deprived of the oportunity of obtaining simple and harmless remedial agents, or be able to obtain them only under humiliating conditions and at greatly increased expense, because the few abuse them? Why should the many innocent be made to suffer for the faults of the few?

Is there not something absurdly wrong with a theory of reformation that values the derelicts of society at so high a rate that it insists upon saving them at the expense of the normally constituted and law-abiding portion of the community? Is it a broad and philosophical spirit of humanity which dictates such a policy, or is it a mere sloppy sentimentalism, the result of the peculiar spiritual exaltation of the emotional reformer that blinds him to a true appreciation of moral values?

That the law-abiding citizen must surrender some of his liberties and assume some additional burdens in order to curb the criminal and defective classes is granted, but there is a limit beyond which the law should not go, and that limit is exceeded whenever it is proposed to place a premium upon the weaklings and unfit at the expense of the welfare of the normally constituted and deserving members of society.

I maintain that the state owes its first duty to the great mass of its citizens who so order their lives and occupations that no compulsion is needed for their correction, and that it disgracefully violates this obligation when it sacrifices the just rights and liberties of these to the passions and faults of the criminal and defective classes.

A Reasonable Solution.—What is the best disposition of these certain classes of preparations which, though primarily intended for legitimate purposes, and mainly employed for such purposes, nevertheless can be used by the confirmed alcohol or opium habitué in partial assuagement of a clamoring appetite?

They are not satisfactory substitutes from the standpoint of the habitué, because of their expensiveness and low content of the narcotic drug, and because of the generally disagreeable tastes and effects of the associated drugs.

As a rule, the preparations of this class constitute no menace whatever to the non-habitué, since they are adapted only for the emergency treatment of sudden ailments, usually do not possess attractive flavors, and are not at all likely to be taken for a sufficient length of time to create a drug habit.

There ought to be, and I believe there is, a possible middle ground between the total prohibition of the sale of these articles and their unrestricted sale—a middle ground which will permit reasonable liberty in the use of these preparations without providing the means for gross evasion of the law.

This reasonable regulation is *to make the purpose of the sale determine the legality or illegality of the transaction,* that is, to make the transaction a legal one if the article is sold in good faith for medicinal purposes, and an illegal one if sold with the intent to evade the law, or if sold under circumstances which should raise the suspicion of bad faith on the part of the seller, the burden of proving the perfect good faith of the transaction being placed on the dealer or dispenser.

The difference in the largest quantities of the several articles which could properly be consumed for medicinal purposes and the least quantities which would be sufficient to satisfy a drug habit is so great that there could be no mistaking them. For example, if a customer should require no more than a pint of spirit of camphor, or no more than four ounces of cholera mixture in a period of three months, it would be absurd to conclude that he purchased the articles for the sake of the alcohol or opium they contained, whereas if he offered to purchase the same quantities every day, which would be the least a regular habitué would require, it would be unreasonable to assume that he purchased them for legitimate personal use.

Of course it will be objected that by making these rounds of all the drug stores in a city, an alcohol or drug habitué might be able to secure sufficient quantities of these preparations to satisfy his cravings without purchasing an unusual amount at any one store. But if any reasonably efficient system of inspection is carried out—and there must be efficient inspection to make any law effective—notice of such cases can be given to all druggists in the city and the sale to such persons be discontinued.

It will also be objected that the necessity of showing evil intent on the part of the seller will make it more difficult to secure convictions, but I am not yet ready to admit that the rights and liberties of thousands of legitimate consumers are of less importance than the convenience of prosecuting officers, or even that the worst that could happen—which would be the occasional escape of a guilty dealer here and there—would be comparable to the injury to the careful physician and pharmacist and the public at large which would result from making the sale of such articles absolutely illegal.

As a corollary to making the legality or illegality of the sales of these classes of preparations depend upon the purposes for which they are sold, the anti-liquor and anti-narcotic laws should be reformed so as to provide suitable penalties for those who obtain them, either surreptitiously or otherwise, to use for other than proper and legitimate purposes. The penalties will then be fitted to the criminal as well as to the crime.

Those who seek to close up every possible loop-hole in the law, so that there cannot be any conceivable opportunity for evasion, labor under the delusion that absolute perfection can be attained in legislation and law enforcement, a delusion that is contradicted by the experience of all recorded history. Extraordinarily drastic legislation has always defeated its own object and always will, kings, parliaments, legislatures and courts to the contrary notwithstanding.

No law can be made to be 100 percent efficient. There will always be some violations and evasions, no matter how rigorous the administration or how complete and specific the prohibitions may be.

As a matter of fact, unreasonably severe restrictions will have a greater tendency to limit legitimate commerce and consumption than to limit the illegitimate kinds. If the regulations are made too strict, the law-abiding pharmacist and physician will refuse to handle the drugs at all rather than take the risk of being caught up for some technical violation; and the legitimate consumer will go without a necessary medicine rather than go to the trouble and expense necessary to obtain it. On the other hand, the confirmed drug fiend or the hopeless alcohol habitué, crazed for want of his accustomed narcotic, will go to any length to satisfy his craving, and the unscrupulous dealer, tempted by the increased profits, will take a chance in evading the law. The legitimate and proper use of the drugs will have been restrained; their illegitimate use will simply be made more expensive.

I have spoken particularly of legislation against the sale of legitimate and useful preparations containing alcohol and opiates, because general attention is at present focussed upon them, but similar legislation has been proposed, or is being proposed, concerning practically everything in the drug line. For years the drug trade has served as a sort of experimental guinea-pig for the doctrinaire reformer to try his fads upon, and, unless we learn to oppose effective resistance to such efforts, the day is not far distant when the drug store will become merely a museum of the things which we were once permitted to sell.

Those who propose new restrictive legislation should be made to prove its necessity by stronger evidence than the untrustworthy declarations of emotional reformers, and they should also be made to prove beyond a reasonable doubt that the benefits of the proposed reform will not be outweighed by the damage to legitimate interests and to the welfare and convenience of the well-behaved portions of the community.

We must resist the exaggerated idea of the danger of drugs that obsesses the public mind, and insist that they be dealt with legislatively in the proportion to the damage they do and the useful purposes they serve, just as if they were articles of hardware, and that they shall not be discriminated against simply because they are kept in drug stores and have dog-Latin names.

Drugs and chemicals do not produce a tithe of the damage that is caused by edged tools, and yet there is an almost universal tendency to treat them with greater severity. When a crime is committed with a hatchet, we do not pass laws restricting the manufacture and sale of hatchets, but against their use for criminal purposes.

We are asking only what is just when we demand that drugs and chemicals be dealt with in the same way, and that the law should hold to account those who would make a wrongful use of them, or who knowingly supply them for wrongful use, and not those who supply them for the normal purposes of life and commerce.

The tendencies in legislation I have described are not imaginary. They represent a condition that constitutes a serious menace to the welfare of every business unit of the drug trade, whether manufacturer, wholesaler or retailer, but which bears with especial force upon the retailers. Your association can do much to help the retailer obtain just consideration before federal and state law-making bodies, and on behalf of the American Pharmaceutical Association I bespeak your hearty coöperation to this end, and extend to you the cordial greetings of that association and the wish that you may have a successful and enjoyable meeting.

A SYSTEM FOR AUTOMATIC REPERCOLATION AND DRUG EXHAUSTION.

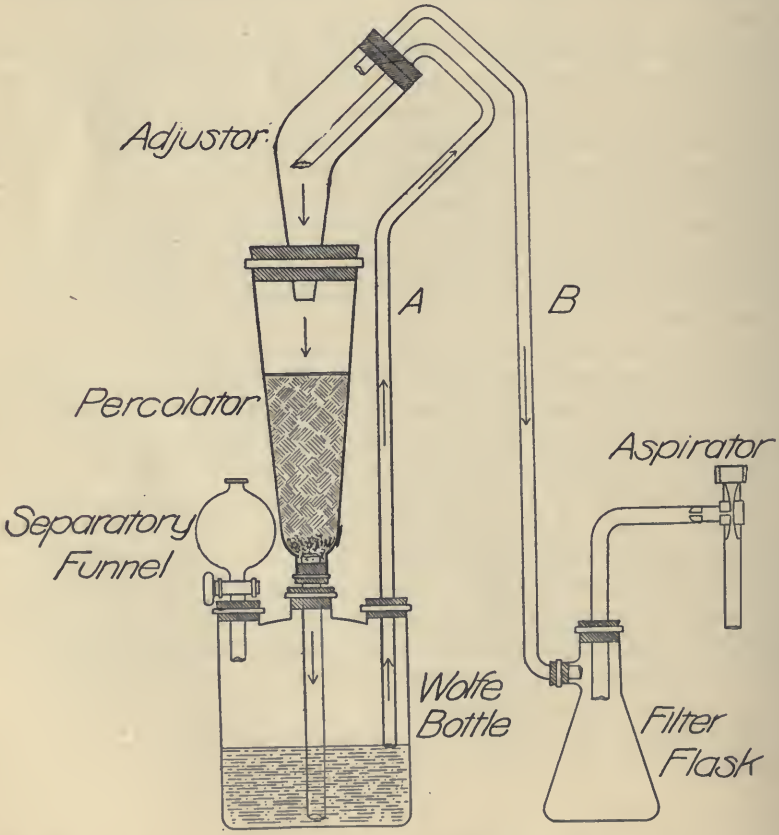
BY JOHN W. FORBING.

There are various well-known methods by which drugs may be extracted with use of minimum amount of menstruum—the Soxhlet, for example, and its modifications. These methods involve the use of heat, volatilization of drug solvent and condensation. Means, other than these, working automatically, are unknown.

In percolating a drug with combustible volatile liquids by the familiar methods, there is always a possibility of breakage and the contingent loss and danger.

In analytical work, the Soxhlet modifications are often prohibited, due to destruction of certain constituents by prolonged heating. Digestion is resorted to, in such cases, at ordinary temperatures with frequent agitation for long periods of time. In certain work, weeks are not infrequently required.

To obviate these inconveniences and difficulties, the author has devised a system, the operation of which is made clear by the accompanying drawing. Tube A is adjusted to such a height in the menstruum in the Wolfe bottle that, when emptied by suction, it will transfer a convenient amount of the liquid to the drug in the percolator. The arrows point the direction of flow. When A is emptied, there is a difference of pressure in the system equal approximately to the weight of the liquid transferred to the percolator. This liquid then percolates through drug to



Wolfe bottle and will rise to level of A and be retransferred to percolator. This operation will be repeated indefinitely, automatically and without attention. Drug, or other material, should be, of course, moistened and loosely packed before energy is supplied to the system by flow of water through aspirator. The separatory funnel serves to introduce menstruum to make up for that which may be lost by evaporation, and, too, if opened at the close of operation, before shutting off the flow of water through aspirator, will prevent back-flow of water into the filter flask. The filter flask is designed to act as a safety catch for any fluid which might be drawn from the adjustor through mal-adjustment of tube A. When the operation is finished, or the drug completely exhausted, the adjustor and tubes A and B are removed and fresh menstruum is added to percolator to displace the fluid containing soluble constituents. Elongation of the tube from percolator to bottom of Wolfe bottle adds, also, when filled, weight in fluid to increase flow by gravity.

In analytical work, where ethereal and fatty oils, etc., are to be extracted with petroleum spirit, an inverted condenser may be placed advantageously between the adjustor and filter flask to minimize evaporation. The condenser can also be used when resins and their allies are extracted with ether. For extraction of substances, such as resins, tannins, bitter principles, alkaloids, glucoses, etc., with absolute alcohol, a tube of calcium chloride may be placed intermediate with filter flask and adjustor. Extraction of mucilage, acids, glucoses, saccharoses, etc., with water is remarkably easy to perform, obviating the necessity of frequent agitation during long periods—filtering and washing are also more easily accomplished. The system is obviously advantageous for removal of meta-arabic acid, phlobophenes, etc., with dilute sodium hydroxide solution; and para-arabin, oxalate of calcium, etc., with dilute hydrochloric acid.

THE CREIGHTON UNIVERSITY LABORATORIES, Omaha, Nebraska.

DETECTION OF SACCHARIN IN FOOD.

The sample is extracted with a mixture of ether and petroleum spirit, the extract evaporated, the residue boiled for a few minutes with 10 percent hydrochloride acid, and the solution evaporated to dryness. If the presence of vanillin in the residue is indicated by the odor, it is removed by extraction with a mixture of ether and chloroform. A portion of the residue is treated with Nessler's reagent; if no reaction is obtained, saccharin is absent. If a positive result is obtained, the remainder of the residue is dissolved in phenol and the solution dropped on to phosphorus pentoxide in a porcelain crucible. If saccharin is present a red coloring matter is formed; this dissolves in the water to a yellow solution, which becomes blue on addition of alkali.—M. Klostermann and K. Scholta, *Z. Unters. Nahr. Gennusm. Z. angew. Chem.* Abstract from *Journal of the Soc. of Chem. Ind.*

A CONSTANT TEMPERATURE BATH FOR MAINTAINING TEMPERATURES LOWER THAN THAT OF THE ROOM.*

BY PAUL S. PITTENGER, PHAR.D.

There are many forms of thermo-regulators on the market by which the supply of gas or electricity may be automatically controlled in such a way as to maintain constant temperatures in water-baths, hot-air ovens, incubators, etc. All of these, however, are adapted for maintaining temperatures *above* that of the ordinary laboratory or room.

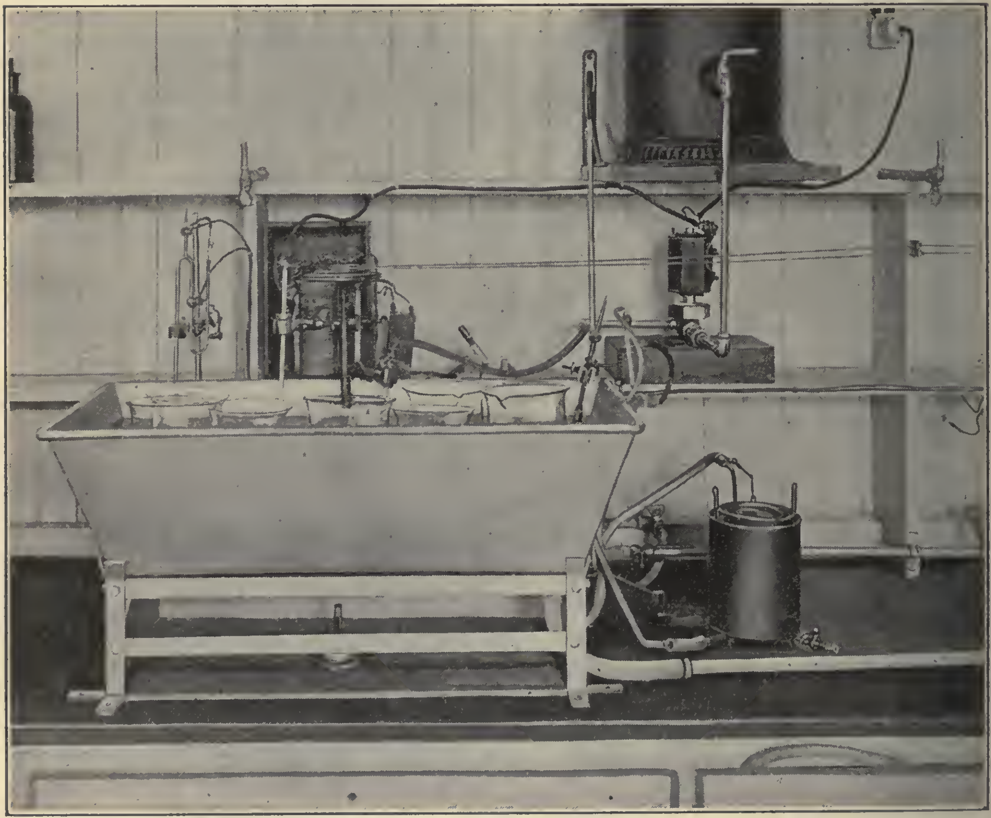


FIG. 1.—Arrangement of apparatus employed for maintaining temperatures lower than that of the room.

Continuing my experiments with the use of gold fish [1] as a means of standardizing the drugs belonging to the Digitalis group, I found the best temperature at which to carry out these tests to be from 21° to 22° C. As the temperature of our laboratory in the summer months is always above 22° C., and often as high as 27 to 31° C., I found it necessary, in order to continue my experiments, to devise some method or apparatus by which it would be possible to keep a water-bath at a temperature of 20 to 22° C. (below the normal room temperature at this season). For this purpose I devised the apparatus described below, which has been in our laboratory for some time and has proven entirely satisfactory.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

[1] "Preliminary Note on a New Pharmacodynamic Assay Method, *Carassius auratus* (Gold Fish) as Test Animals for the Digitalis Series." J. A. Ph. A., April, 1915.

Briefly summed up, this apparatus consists of a metal tank (see Fig. 2) used as a water-bath which is provided with a perforated shelf on which beakers or other containers holding the material to be kept at a definite temperature may be placed. Near the center of the tank and dipping into the water there is a stirring apparatus driven by a small water motor. At one end of the tank there is a toluol-mercury regulator (see Fig. 3) which dips into the water, and at the opposite end there is an alcohol-mercury gas regulator also arranged to dip into the water.

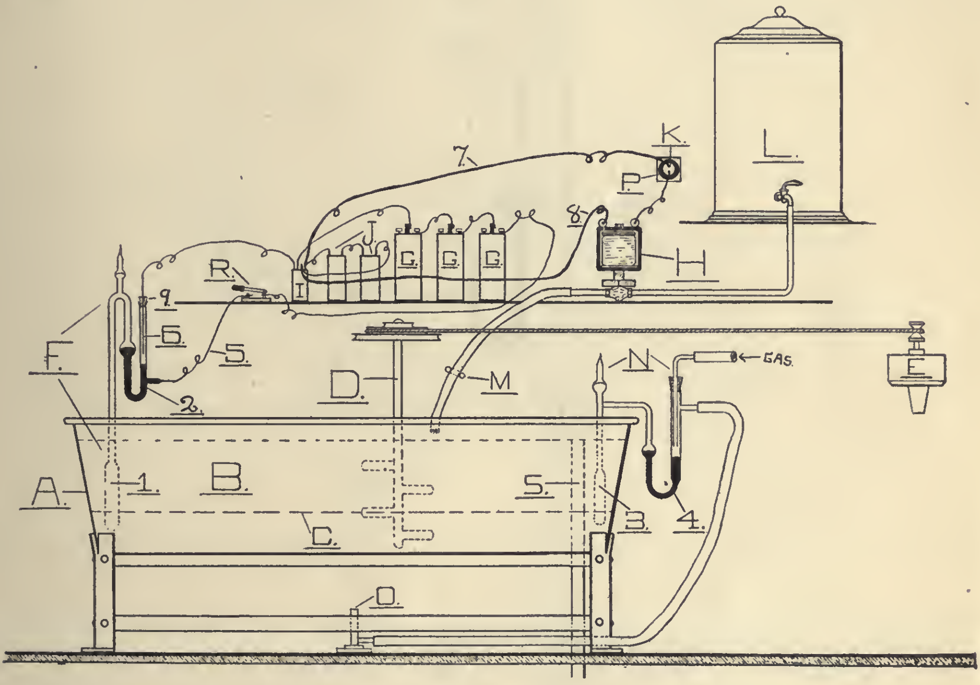

FIG. 2.

The toluol-mercury regulator is connected electrically to a water cooler, and, by means of a solenoid water valve in the electric circuit, the cold water supply from the cooler may be either released or withheld.

When an experiment is to be conducted the toluol-mercury regulator is adjusted to the temperature which we desire to maintain as described under Fig. 3 and as soon as the temperature of the water in the water-bath rises above this the toluol expands sufficiently to make an electrical contact which releases ice-water from the cooler by means of a solenoid valve and thus the temperature of the water in the tank is lowered.

As the contents of the water-bath become cooler the toluol in the regulator contracts and the electrical circuit is broken, thereby automatically shutting off the ice-water supply until the temperature once more rises above that which we desire to maintain.

DETAILED DESCRIPTION OF APPARATUS.

The following illustrations and explanation cover the arrangement of this apparatus in detail. Fig. 2 shows the entire apparatus as it is connected when ready to begin an experiment.

A represents a metal tank used as a water-bath; B indicates place for water; C, a perforated shelf to support the beakers containing gold fish (or any other material which is to be kept at a constant low temperature); D, stirring apparatus; E, small water motor for driving stirring apparatus (D); F, toluol-mercury regulator (1, toluol, 2, mercury); G, dry batteries; H, electrically operated solenoid water valve of the plunger type. When the electric current is passed through the coil it forms a magnet which raises the plunger and opens the valve. When the current is shut off, the plunger falls by gravity and closes the valve. I, relay; J, condensers, which are used to prevent sparking when the relay makes and breaks the electric current and thus prevents the contacts from burning off. K, plug; L, water cooler; M, stopcock; N, alcohol-mercury gas regulator (3, alcohol, 4, mercury); O, small bunsen gas burner; P, socket; connected with either 110 or 220-volt electric current; 5 and 6, battery wires; 7 and 8, electric wires either 110 or 220 volts; R, switch to disconnect thermostat when not in use in order to save batteries; S, overflow pipe.

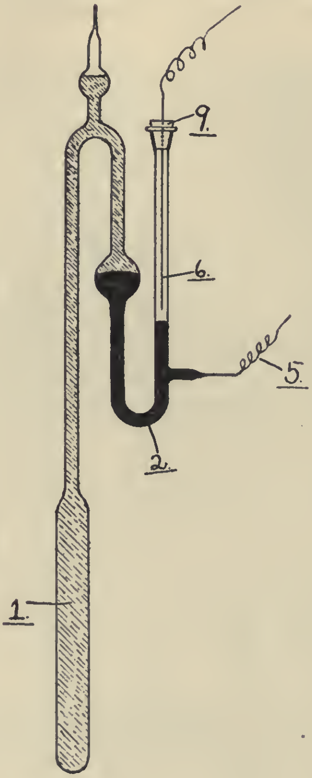

FIG. 3.

Fig. 3 shows the construction of the toluol-mercury regulator. That portion of the glass tube which is lightly shaded represents (1) toluol. The black portion (2) represents mercury. It will be noted that the platinum end of battery wire (5) is constantly in contact with the mercury. This wire (5) is connected directly with the zinc pole of the dry batteries. The platinum point of battery wire (6) which is connected to one "battery pole" of the relay is so arranged that it may be raised or lowered through stopper (9). The other "battery pole" of the relay is connected with the carbon pole of the batteries, thus completing the circuit when the relay is closed. The relay must be of the type which makes a contact when the battery circuit is closed by the thermostat and breaks the contact when the battery circuit is broken.

In order to adjust the regulator so that it will throw the relay at a given temperature, say for example 22° C., it is only necessary to place bulb (1) in a large beaker of water, bringing the temperature of the water to exactly 22° C., and then adjust battery wire (6) so that it just touches the surface of the mercury. The regulator is then placed in the bath which is to be kept at 22° C., and if the temperature rises above 22° C. a contact is formed as described later on.

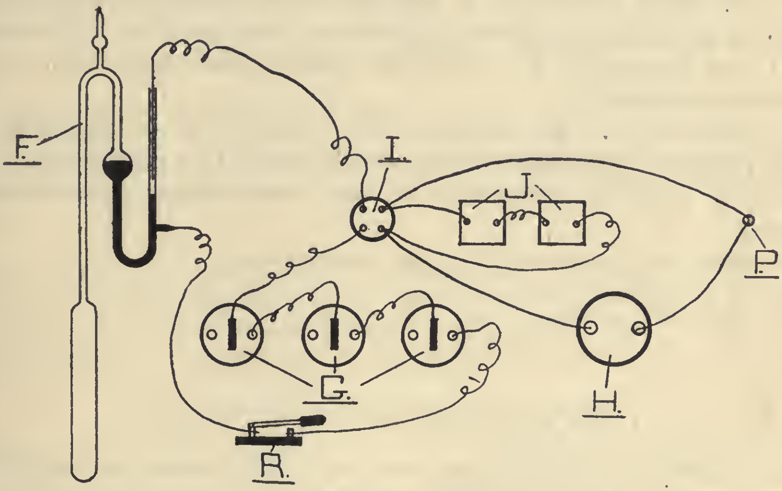

Fig. 4.

Fig. 4 shows method of connecting thermostat (F), relay (I), condensers (J), batteries (G), and solenoid valve (H) with the electric plug (P).

In order to maintain a constant temperature *lower* than that of the room, it is necessary, therefore, to first arrange the apparatus as described under Figure 2, then regulate the thermostat, as already outlined under Figure 3, so that it will make a contact at the desired temperature, say for example, 22° C. Fill cooler (L) with ice and water; start stirrer (D); put cake of ice in water (B) until temperature falls to about 20 or 21° C.; remove ice from (B) and insert plug (K) in socket (P). The apparatus will then automatically keep the water (B) at a uniform temperature of 21.5 to 22° C. as follows:

The comparatively warm air of the room produces a gradual increase in the temperature of the water (B) which causes the toluol in (F) to expand and the mercury in F2 to rise. When the temperature of the water reaches exactly 22° C. the mercury touches the platinum point of wire (6) which completes the battery circuit and allows the current from the battery to run through the coil of the relay, thus forming an electromagnet which lifts the armature of the relay and in turn makes the contact which closes the electric circuit from socket (P) and allows the strong electric current to pass through the coil (H) which opens the water valve, as previously described, and allows ice-water from (L) to run into (B). The stirrer (D) distributes the ice water throughout the tank.

With the gradual lowering of the temperature of the water the toluol contracts and causes the mercury to fall away from the platinum wire (6), thus breaking the battery current which is passing through the relay. This break allows the armature of the relay to fall away from the contact and thus breaks the strong current from socket (P) which is passing through and holding open the solenoid valve. This allows the plunger to fall and shut off the flow of ice-water. The warm air of the room then gradually increases the temperature of the water until at 22° C. the mercury in the thermostat again makes a contact and the whole operation repeats itself.

The alcohol-mercury gas regulator (N) is familiar to all laboratory workers and it is therefore unnecessary to describe it here. This regulator is for use in cold weather when the temperature of the room is below that desired in the water-bath.

PHARMACODYNAMIC LABORATORY, H. K. MULFORD COMPANY.

IMMUNO-CHEMISTRY OF PLANTS.

A great fund of knowledge has been gathered in recent years concerning the processes involved in the immunity of animals to specific diseases, but comparatively little is known about analogous processes in plants. Mr. R. W. Thatcher has reported some investigations of the latter subject, comprising a comparative biochemical study of healthy and diseased plants, and a biochemical and microchemical study of the reactions produced in the host plant by a growing parasite. He states that sufficient progress has been made to justify the recognition of two types of resistance, or immunity, viz.: (1) an antagonism of the tissue substances of the infected plant to the action of the enzymes or other agents excreted by the growing hyphæ of the parasite, and (2) a hypersensitiveness of the host, whereby its tissues at the point of entrance of the parasite are killed and no longer supply nutrient material for the latter, thereby causing its death by starvation.—*Scientific American.*

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in THE JOURNAL, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

OTTO RAUBENHEIMER, Brooklyn, N. Y.

DELETED U. S. P. AND N. F. FORMULAS TO BE INCLUDED IN A. PH. A. RECIPE BOOK.

The Committee in its Annual Report at the Atlantic City Convention recommended the inclusion of these formulas in the Recipe Book. Exceptions are the following:

(*a*) Pharmaceutically unsatisfactory formulas, f. i. Emplastrum Adhæsivum, U. S. P. VIII.

(*b*) Therapeutically unsatisfactory Formulas, f. i. Trochisci Sodii Santoninatis, U. S. P., 1880, N. F. III App.

(*c*) Preparations of Coca, which are habit-forming and which deteriorate very rapidly.

(*d*) Extracts and Fluidextracts, as these are generally not manufactured by the average pharmacist.

It was not deemed advisable to take up valuable space in the JOURNAL A. PH. A. by the publication of these formulas which can be readily found in U. S. P. VIII and N. F. III, copies of which standards are still in the hands of every pharmacist. However, as a matter of record, the titles of the preparations are herewith published.

FOR INCLUSION IN A. PH. A. RECIPE BOOK.

Deleted U. S. P. VIII Formulas.

Carbo Animalis Purificatus.
Elixir Ferri, Quininæ et Strychninæ Phosphatum.
Emplastrum Hydrargyri.
Emplastrum Opii.
Emulsum Chloroformi.
Extractum Scopolæ.
Fel Bovis Purificatum.
Glyceritum Ferri, Quininæ et Strychninæ Phosphatum.
Magnesii Sulphas Effervescens.
Mucilago Ulmi.
Pilulæ Opii.
Pilulæ Podophylli, Belladonnæ et Capsici.
Spiritus Ammoniæ.
Spiritus Gaultheriæ.
Syrupus Amygdalæ.
Syrupus Calcis.
Trochisci Glycyrrhizæ et Opii.
Trochisci Krameriæ.
Vinum Ergotæ.
Vinum Opii.

Deleted N. F. III Formulas.

Acetum Lobeliæ.
Acetum Sanguinariæ.
Acidum Citricum Saccharatum.
Acidum Hypophosphorosum.
Acidum Tartaricum Saccharatum.
Antimonii Sulphidum Purificatum.
Balsamum Traumaticum.
Boroglycerinum.
Caffeinæ Sodio-Benzoas.
Ceratum Camphoræ Compositum.
Ceratum Cetacei.
Ceratum Sabinæ.
Decoctum Aloes Compositum.
Decoctum Cetrariæ.
Elixir Ammonii Valerianatis et Quininæ.
Elixir Caffeinæ.
Elixir Cinchonæ, Pepsinæ et Strychninæ.
Elixir Digestivum Compositum.
Elixir Eucalypti.
Elixir Euonymi.
Elixir Frangulæ.
Elixir Glycyrrhizæ.

Elixir Grindeliæ.
Elixir Malti et Ferri.
Elixir Paraldehydi.
Elixir Picis Compositum.
Elixir Pilocarpi.
Elixir Quininæ et Phosphatum Compositum.
Elixir Rhei.
Elixir Rhei et Magnesii Acetatis.
Elixir Stillingiæ Compositum.
Elixir Turneræ.
Emplastrum Ammoniaci.
Emplastrum Ammoniaci cum Hydrargyro.
Emplastrum Arnicæ.
Emplastrum Aromaticum.
Emplastrum Asafœtidæ.
Emplastrum Ferri.
Emplastrum Galbani.
Emplastrum Picis Burgundicæ.
Emplastrum Picis Canadensis.
Emplastrum Picis Cantharidatum.
Emplastrum Picis Liquidæ Compositum.
Emulsum Ammoniaci.
Emulsum Olei Morrhuæ cum Calcii et Sodii Phosphatibus.
Emulsum Olei Terebinthinæ Fortior.
Emulsum Phosphaticum.
Ferri Hypophosphis.
Ferri Iodidum Saccharatum.
Hydrargyri Subsulphas Flavus.
Lac Humanisatum.
Linimentum Cantharidis.
Linimentum Iodi.
Linimentum Plumbi Subacetatis.
Liquor Ammonii Acetatis Concentratus.
Liquor Ammonii Citratis Fortior.
Liquor Antigerminarus.
Liquor Electropœicus.
Liquor Extracti Glycyrrhizæ.
Liquor Ferri Iodidi.
Liquor Iodi Causticus.
Liquor Magnesii Bromidi.
Liquor Morphinæ Citratis.
Liquor Morphinæ Hypodermicus.
Liquor Saccharini.
Liquor Seriparus.
Liquor Sodii Carbolatus.
Liquor Sodii Oleatis.
Liquor Zingiberis.
Lotio Adstringens.
Mistura Acaciæ.
Mistura Contra Diarrhœam, Loomis.
Mistura Contra Diarrhœam, Thielman.
Mistura Contra Diarrhœam, Velpeau.
Mistura Splenetica.
Mistura Sulphurica Acida.
Mucilago Cydonii.
Mucilago Dextrini.
Mucilago Salep.
Oleatum Zinci.
Pasta Ichthyoli, Unna.
Pepsinum Aromaticum.
Pilulæ Antineuralgicæ.
Pilulæ Ferri Compositæ.
Pilulæ Galbani Compositæ.
Pulvis Acaciæ Compositus.
Pulvis Amygdalæ Compositus.
Pulvis Ferri et Quininæ Citratis Effervescens.
Pulvis Ferri Phosphatis Effervescens.
Pulvis Iodoformi Compositus.
Pulvis Pepsini Compositus.
Pulvis Pro Lacte Humanisato.
Sodii Bicarbonas Saccharatus.
Spiritus Aurantii.
Spiritus Cardamomi Compositus.
Spiritus Curassao.
Spiritus Limonis.
Spiritus Myristicæ.
Spiritus Ophthalmicus.
Spiritus Phosphori.
Spiritus Saponatus.
Spongia Compressa.
Spongia Decolorata.
Stilus Cocainæ Dilubilis.
Syrupus Chondri Compositus.
Syrupus Coffeæ.
Syrupus Ferri Arsenatis.
Syrupus Ferri Bromidi.
Syrupus Ferri Citro-Iodidi.
Syrupus Hypophositum.
Syrupus Morphinæ Compositus.
Syrupus Morphinæ Sulphatis.
Syrupus Rubi Aromaticus.
Tinctura Aconiti, Fleming.
Tinctura Antacrida.
Tinctura Arnicæ Radicis.
Tinctura Chiratæ.
Tinctura Cinchonæ Detannata.
Tinctura Conii.
Tinctura Cresoli Saponata.
Tinctura Matico.
Tinctura Papaveris.
Tinctura Stramonii Seminis.
Tinctura Tolutana Ætherea.
Tinctura Tolutana Solubilis.
Tinctura Vanillini Composita.
Trochisci Catechu.
Trochisci Cretæ.
Trochisci Ferri.
Trochisci Ipecacuanhæ.
Trochisci Magnesiæ.
Trochisci Morphinæ et Ipecacuanhæ.

Trochisci Zingiberis.
Unguentum Acidi Gallici.
Unguentum Mezerei.
Unguentum Plumbi Carbonatis.
Vinum Album Fortius.
Vinum Aloes.
Vinum Aurantii.
Vinum Carnis, Ferri et Cinchonæ.
Vinum Rhei.
Zinci Oleostearas.

Contributed by Th. D. Wetterstroem, Cincinnati:

No. 341.

BUCKEYE HAIR TONIC.

Tincture Cantharides	30 mils
Tincture Capsicum	15 mils
Resorcinol	8 Gm.
Infusion Sage, 5 per cent	500 mils
Alcohol	440 mils
Perfume Extract	15 mils

To the cooled, strained infusion of sage add the other ingredients.

Six ounces for 50 cents.

No. 342.

BUCKEYE HERB TEA.

Senna, broken pieces	40 Gm.
Elder Flowers	25 Gm.
Fennel, bruised	12.5 Gm.
Anise Seed, bruised	12.5 Gm.
Potassium Bitartrate	10 Gm.

Moisten the senna leaves with small quantity of water. Sprinkle the potassium bitartrate as uniformly as possible over the senna. When dry, mix in the other ingredients.

One and a half ounces for 10 cents.

No. 343.

BUCKEYE BLOOD AND LIVER PILLS.

Each pill contains:

Resin of Podophyllum	0.013 Gm.
Resin of Jalap,	
Aloin, of each	0.0065 Gm.
Oleoresin of Capsicum,	
Extract of Nux Vomica,	
Extract of Hyoscyamus, of each	0.0033 Gm.

Dose: One to two pills.

Twenty-five pills to a bottle for 15 cents.

Contributed by William H. Glover, Lawrence, Massachusetts:

No. 344.

ELIXIR BROMOFORMI COMPOSITUM.

Compound Elixir of Bromoform.

Bromoform	34 Gm.
Alcohol	500 mils
Ammonium Bromide	66.5 Gm.
Distilled Water	250 mils
Syrup Ipecac,	
Tr. Cardamom Comp., of each	125 mils
Glycerin, a sufficient quantity,	
To make	2000 mils

No. 345.

ASTHMA POWDER.

Stramonium, coarse powder	3 parts
Potassium Nitrate, powdered	1 part

Mix well.

A very simple formula, but very effective.

Contributed by William Gray, Presbyterian Hospital, Chicago:

No. 346.

LIQUOR GUTTÆ PERCHÆ COMPOSITUS.

Chrysarobin Traumaticin.

Chrysarobin	5 Gm.
Liq. Guttæ Perchæ (N. F. IV)	95 Gm.

Note: Excellent for psoriasis.

No. 347.

UNGUENTUM NAFTALANI COMPOSITUM.

Naftalan	50 Gm.
Starch	25 Gm.
Zinc Oxide	25 Gm.

Note: Very efficacious in eczema, dermatitis, etc. Naftalan must not be confused with naphthalene. It is a blackish-green ointment base, soluble in ether and chloroform and miscible with fats. It is prepared from the distillation residue of Caucasian petroleum to which about 4 percent of anhydrous soap is added.

Contributed by John K. Thum, German Hospital, Philadelphia:

No. 348.

TINCTURA APOCYNI. (TINCT. APOCYN.)

Tincture of Canadian Hemp.

Apocynum, in No. 30 powder	100 Gm.
Glycerin	50 mils
Alcohol,	
Water, of each, a sufficient quantity,	
To make	1000 mils

Macerate the apocynum for twenty-four hours with one hundred mils of a mixture of fifty mils of glycerin, six hundred mils of alcohol, and four hundred mils of water. Then pack firmly in a cylindrical percolator and percolate with the remainder of the menstruum; finish the percolation with the proportion of alcohol and water mentioned above until one thousand mils have been obtained.

There is no official standard tincture and yet we have frequent demands for one at the German Hospital, Philadelphia. As Osler classes this drug among the digitalis series, we deemed it best to make the tincture of the same strength as the pharmacopœial tincture of digitalis leaves. This would also be adhering to the standard adopted in the International Protocol of the Brussels Conference as to the desirability of uniformity in the preparation of the potent tinctures.

Average dose: 2.5 mils.

No. 349.

ELIXIR RHAMNI PURSHIANÆ AROMATICUM.

Aromatic Elixir of Cascara.

Cascara Sagrada	150	Gm.
Mandrake	75	Gm.
Taraxacum	75	Gm.
Licorice Root	75	Gm.
Sweet Orange Peel	25	Gm.
Alcohol, one vol.,		
Water, two vol., percolate to	600	mils
Oil Cinnamon	0.4	mil
Oil Cardamom	0.4	mil
Oil Caraway	0.4	mil
Oil Clove	0.4	mil
Sugar	200	Gm.

No. 350.

ELIXIR HYDRASTIS.

Fluidextract Hydrastis	10.0	mils
Aromatic Elixir	90.0	mils

No. 351.

ELIXIR HEROIN COMPOSITUM.

Heroin Hydrochloride	0.5	Gm.
Ammonium Hypophosphite	20	Gm.
Tincture Hyoscyamus	50	mils
Syrup Tolu	200	mils
Glycerin	200	mils
Aromatic Elixir, a sufficient quantity,		
To make	1000	mils

No. 352.

ELIXIR TERPINI HYDRATIS COMPOSITUM.

Terpin Hydrate	5	Gm.
Creosote	2	mils
Codeine Sulphate	0.6	Gm.
Syrup Wild Cherry	200	mils
Aromatic Elixir, a sufficient quantity,		
To make	500	mils

No. 353.

ELIXIR FOUR CHLORIDES.

Mercuric Chloride	0.025	Gm.
Solution Arsenous Acid	2.00	mils
Tincture Ferric Chloride	8.50	mils
Diluted Hydrochloric Acid	8.50	mils
Syrup	25.00	mils
Aromatic Elixir	30.00	mils
Water, a sufficient quantity,		
To make	100	mils

No. 354.

MISTURA NUX ET SODÆ.

Tincture Nux Vomica	5	mils
Sodium Bicarbonate	10	Gm.
Distilled Water	150	mils

Mix and filter.

No. 355.

MISTURA NUX ET SODÆ CUM CASCARA.

Aromatic Elixir Rhamnus Purshiana (No. 349)	50	mils
Nux and Soda Mixture	100	mils

Contributed by Prof. W. L. Scoville, Detroit, Michigan:

No. 356.

OLEUM CINEREUM.

Gray Oil.

Mercury	19.5	Gm.
Mercurial Ointment (U. S. P.)	1.0	Gm.
Sterile White Petrolatum	9.5	Gm.
Sterile Liquid Petrolatum	20.0	Gm.

Triturate the mercury, mercurial ointment and 2.5 Gm. of white petrolatum in a sterile mortar until the mercury is extinguished, then add the rest of the ingredients.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CINCINNATI.

The Cincinnati Branch, A. Ph. A., opened its 1916–17 Session in an auspicious manner by honoring our esteemed friend and member, John Uri Lloyd, with a testimonial banquet at Hotel Gibson. No greater tribute of love was paid to any man, than that which was accorded Prof. John Uri Lloyd by the members and their friends on this occasion. It was, as some of the speakers stated, "a huge family gathering," in which the "family" themselves, apparently aged, were referred to by Professor Lloyd as my "young friends and children."

Professors, scientists, druggists and medical men, all close friends of Professor Lloyd and acknowledged authorities in their professions, were present, joining hands as one in paying a glorious tribute to a man of national and international fame.

Following the banquet, Hon. Frank H. Freericks, acting as toastmaster, introduced the speakers, each of whom praised the guest of honor in various branches of work and research.

Prof. C. T. P. Fennel presented a masterly eulogy upon the works, the thoroughness of thought, the great achievements in chemical, as well as pharmacological, research accomplished by Professor Lloyd. In speaking on "Professor Lloyd's Service to Pharmacy," Professor Fennel said: Time should be pictured as an administering angel, instead of a skeleton and crossbones, stating that it was only thirty-five years ago that he became acquainted with Mr. Lloyd. He briefly outlined the progress accomplished by the "Man of the Old School," who through his own efforts and working has become one of the greatest scientists of the age. President Chas. W. Dabney of the University of Cincinnati spoke of Dr. Lloyd's services to science and literature, referring to him as a man of foresight, wisdom and generosity, an untiring and unselfish investigator.

In speaking of the "Degree of Doctor of Sciences," lately conferred upon Professor Lloyd by the University of Cincinnati, he depreciates the idea that the university has honored Dr. Lloyd, but rather that he has honored the university by his works.

Dr. Martin Fischer told of Professor Lloyd's service to the medical world, saying: "He stands alone in thought as one of the best exponents of the old school." He points out the difference between the old school apothecary and the so-called modern one, as well as the medical man, deploring the vain worship of the so-called modern classes to the products of the tar barrel instead of the remedial products of nature.

Professor Lloyd's service to civic interests was touched upon by Mr. A. J. Conroy, and Frank H. Shaffer closed the tributes when he spoke of "Professor Lloyd as a Friend."

As the final touch to the evening of pleasure, the honored guest himself acknowledged with tears the tributes accorded him. He broke, as he called it, the "praise circle," and said that a man "sees not himself as others see him." He told of his rise from a "green boy on the pike" in Kentucky, how he was imposed upon by those who knew more about the world than himself and of the great struggle to attain the peak upon which he now stands.

"Few of you know what it means to fail and fail again, and go through what I have gone through to succeed. The greatest gift of man is the great gift, that of giving to others, the one thing which I have always kept in mind." He paid a loving tribute to his family, saying: "The fruits of my work belong to my wife, my family, my home."

As he finished speaking, the orchestra played the National Hymn, the "whole happy family" rising and joining, and all drank to Professor Lloyd's health and happiness.

Chas. A. Apmeyer, *Secretary.*

DENVER.

The September meeting of the Denver Branch of the American Pharmaceutical Association was held at the Metropole Hotel, Tuesday, September 19th.

After a very enjoyable dinner, President Hover called the meeting to order and the minutes of the May Meeting were read and approved.

Mr. Clayton, who acted as delegate of the Branch at the A. Ph. A. Convention at Atlantic City, was called upon for a report on the meeting. He discussed the criticism of the Association affairs brought out by President Alpers in his address, centering on the Council, financial condition, the sale price of the National Formulary, and the work of the membership committee. He expressed a belief that aside from the justice or injustice of the criticism the address of President Alpers would do a great deal of good in stirring up the members. Mr. Hensel, Council member of the Branch, stated that he did not feel that the criticism of the Council was justified, as the Council was not the autocratic body that one would be led to believe it was, from the criticism offered.

Dr. Engle, Dean of the Department of Pharmacy in the University of Denver, and Professor Cutler were present as guests of the Branch for the purpose of conveying some information about the Department of Pharmacy established this month at the University of Denver, and to elaborate the report of the committee appointed after the May meeting, whose duty it was to co-operate with the University in the effort to establish such a department. President Hover, who acted as chairman of the latter committee, reported that the work done by this committee consisted of several meetings at which representatives of the University of Colorado and representatives of the University of Denver were invited to be present, first separately and later jointly, for the purpose of thoroughly harmonizing their respective fields of operation, and clarifying the attitude of the Branch, which in a way had been instrumental with establishing the Department of Pharmacy at the State University, in lending support to the newly established school in Denver. It was the desire of the Branch to have it understood that if the interests of pharmacy of the State demanded the establishment of a second school that its cordial interest and relation to the school at Boulder would in no way be impaired by the interest that might be taken by the Branch in the proposed school. President Farrant of the University of Colorado and Dean Washburn of the Department of Pharmacy expressed themselves as entirely in accord with this idea and offered such assistance as they could render in establishing the department of Denver University, feeling that there was ample room for both schools and that they in no way could be considered rivals in the field.

Having brought about a thorough understanding and created a cordial relationship between all parties interested, the committee left it to the University of Denver to work out the details of the plan of establishing the school, but assuring them, if such a new department would be established, same could rely on the active and moral support of the Branch in its endeavor to make this department a success..

President Hover then called on Dr. Engle to tell the Branch of the development of the department. Dr. Engle stated that they were endeavoring to establish a school, fully meeting the standard and requirements of the better Eastern schools, whose graduates would be accepted in all states, and that its entrance requirements would be on a par with those of the best schools in the country, namely, high school education. They intended to offer the degree of the Ph. G. on the completion of two years' work, the degree of Ph. C. on the completion of three years' work, and the degree of Bachelor of Science in Pharmacy on the completion of four years' work. The University of Colorado would only offer the first year's course this year, establishing the other courses year by year as they went along.

Dr. Engle stated that he believed he had organized an efficient and satisfactory faculty for the new department in securing the services of Professor Cutler as professor of botany, Dr. Drinkwater as professor of materia medica, Dr. Mugrage as professor of bacteriology. He was unable to state, however, who would hold the chair as Professor of Pharmacy, as he had not received a definite answer from the man who had been asked to serve in this capacity, but was certain that if his services could be secured, the Branch would fully approve of the man in question and would be well satisfied with the selection.

He spoke of the desirability of creating an advisory board of members of the Branch for the purpose of keeping the school in close touch with the practical side of the drug trade in educational work.

President Hover then called on Dr. Cutler for a few remarks, to which he responded by outlining a little of the botanical work that would be done at the school. A general discussion on this ensued and various ideas in the direction of making the work in this department of permanent value to the State in the form of experimental and research work, in which most members present took part. Mr. Van Zant suggested that in the creation of the advisory board, it might be desirable to invite the City and State Associations to participate by asking that they each appoint a member to serve on the board.

Two new members whose applications for associate membership in the Branch were accepted, were Geo. G. Gregory and W. W. Trent. Dr. Engle and Prof. Cutler also applied for membership in both the national body and local branch, in which they were heartily welcomed and their application received with instructions that the secretary forward same to the proper authorities.

The following were present at this meeting: Messrs. Jeanon, Kostitch, Clayton, Hover, Lord, Hensel, Gregory, Engle, Nice, Best, Nitardy, Clark, Beukma, Dow, Van Zant and Cutler.

DETROIT.

After a pleasant dinner in honor of our guests, Dr. A. B. Stevens and Wilbur L. Scoville, enjoyed by sixteen of our members at the Fellowcraft Club, the first meeting of the 1916–17 season was called at 8.30 o'clock by Dr. McMillan, President of the Wayne County Medical Society.

The Detroit Branch of the A. Ph. A. and the Detroit Retail Druggists' Association were the guests of the doctors, the evening's program having been arranged by the Branch. Owing to the wide nature of the topics to be discussed, it had been decided to hold this joint meeting. There were about one hundred people present.

Dr. Stevens, upon being introduced, gave a most interesting and instructive talk on the history, scope, and important changes in the Ninth Revision of the United States Pharmacopœia. Dr. Stevens, having served many years on the Committee of Revision, was particularly well qualified to present this important subject to us.

Mr. Scoville, who had just completed his work as acting chairman of the revision committee of the National Formulary IV, then took up this book, showing its supplementary relation to the U. S. P. He stated that this volume is more a collection of formulas of proven therapeutic and pharmaceutical merit, and in common use among physicians. Mr. Scoville emphasized the democratic character of the N. F. as opposed to the aristocratic or exclusive character of the Pharmacopœia, the former embracing the important formulas no longer desired in the latter.

Dr. W. J. Wilson, Jr., then led in the discussion, followed by Dr. J. M. Francis and William A. Hall.

After the speakers of the evening had elucidated various points brought out in the discussion, the meeting was adjourned at 10.45.

F. F. Ingram, Jr., *President.*

INDIANAPOLIS.

The October meeting of the Indianapolis Branch of the American Pharmaceutical Association was held at the Chamber of Commerce Building, Monday, October 16th. Frank H. Carter, President, presided.

F. E. Federer presented a paper on "Some Changes in the New U. S. Pharmacopœia and National Formulary." This paper was received with considerable interest and was discussed by Prof. E. F. Gidley, F. H. Carter and F. A. Miller.

Prof. C. B. Jordan of Lafayette talked about the "Needs of Pharmacy in Indiana." He emphasized the necessity of higher requirements for registered pharmacists and particularly the necessity of college training. Prof. Jordan also called attention to the advantage of enlisting the large percentage of the retail druggists in the work of the American Pharmaceutical Association. This paper was discussed by F. H. Carter and H. S. Noel.

F. E. Bibbins made a report of the Atlantic City meeting of the American Pharmaceutical Association.

The next meeting of the Branch will be held the first Monday in December.

Francis E. Bibbins, *Secretary.*

NASHVILLE.

The regular monthly meeting of the Nashville Branch American Pharmaceutical Association was held Thursday, October 19, 1916, in the Life and Casualty Building in joint session with the Nashville Drug Club. Dr. J. O. Burge presided. After reading and approving the minutes of the previous meeting legislative matters were freely discussed. The need of enacting a new pharmacy law for the State, to replace the present one which has been so frequently amended that it is out of harmony with modern requirements, was shown. After a free exchange of views and a short history of the enactment of the law by Dr. J. O. Burge, one of its framers, it was decided to call a meeting at an early date of the legislative committees of the Branch, the Nashville Drug Club, the State Pharmaceutical Association, and the Attorney of the Board of Pharmacy to thoroughly consider the subject and report what line of action should be pursued.

Cognizance was taken of the fact that a number of ex-saloon keepers have recently opened up drug stores in Nashville with the evident intention of evading the prohibition laws. A committee composed of S. C. Davis, M. E. Hutton, and J. B. Sand was appointed to investigate the situation and report at the next meeting.

Dr. E. A. Ruddiman, chairman of the program committee, reported the following list of subjects for discussion at future meetings: Salesmanship. How much should be charged, in addition to the regular price of prescriptions, on account of the extra labor caused by the Harrison Act? What are the effects of giving clerks commission on goods sold? A study of the reasons and reactions in the new U. S. P. and N. F. Pricing prescriptions. Workings of the Harrison Law. A study of Board questions with a view to determining what kind of questions are practical and those that are not. How can the Board do more efficient work? Deterioration of preparations. What side-lines have been found to give the highest percentage of profit? Merging the National Association of Retail Druggists and the American Pharmaceutical Association, arguments for and against. Advertising and modern merchandising methods.

E. J. Schott called the attention of the members to a recent attempt to enforce the law which prohibits the employment of minors under 14 years of age and makes it unlawful to employ, or permit any minor to work as messenger, after 6 P.M., who is under 16 years of age, and one who is less than 18 years old to work in such capacity before 5 A.M. and after 10 P.M. This created a discussion as to whether druggists should deliver goods or not.

William R. White, *Secretary.*

PHILADELPHIA.

The first 1916–17 monthly meeting of the Philadelphia Branch of the American Pharmaceutical Association was held Tuesday evening, October 10th, at the Philadelphia College of Pharmacy.

President Sturmer called the meeting to order at 8.30 P.M.

The minutes of the previous meeting were read and approved.

A communication from the Secretary of State, in answer to the resolution adopted at the last meeting was read and commented upon.

Under committee reports, Dr. Fischelis, from the Committee on Professional Relations, suggested that we have a joint meeting with the Philadelphia County Medical Society and the Philadelphia Chamber of Commerce on the subject of the U. S. Patent Laws.

Dr. Apple, from the Committee on Entertainment, reported that all their plans were successfully carried out, and that everybody reported an excellent time.

The program of the evening was then taken up, and E. G. Eberle read a report of the Convention of the American Pharmaceutical Association.

The Convention of the National Association of Wholesale Druggists was reported by Dr. Adolph W. Miller.

Mr. Samuel C. Henry gave the report of the Convention of the National Association of Retail Druggists.

The Convention of the Pennsylvania Pharmaceutical Association and the Exposition of the American Chemical Society were reported by Dr. Robert P. Fischelis.

Dr. F. E. Stewart read a paper dealing with the events of the American Medical Association of interest to the pharmacist.

The papers were discussed by Mr. Joseph W. England, Dr. Franklin M. Apple, Prof. F. P. Stroup, Prof. Henry Kraemer, Dr. Robert P. Fischelis, and Dr. F. E. Stewart. During the discussion the following questions were raised:

What can we do towards the furthering of a State Narcotic Law modelled on the plan of the Harrison Act?

What can be done to stimulate attendance for Local Branch Meetings?

If a prescription is returned for refilling, should preparations of U. S. P. VIII or IX be used?

Would it be advisable for the American Pharmaceutical Association to discontinue The Year Book?

Prof. Stroup suggested that these topics would furnish sufficient material for discussion at several subsequent meetings.

J. Ed. Brewer, *Secretary.*

SAN FRANCISCO.

The San Francisco Branch of the American Pharmaceutical Association has resumed its regular monthly meetings. Through the courtesy of Dr. Geo. C. H. Franklin the members meet in room 312, Union Square Building, 350 Post Street. On the evening of October 12th, the chapter on Sterilization given in the fourth edition of the National Formulary was the subject of an informal discussion. The committee on Drug Market outlined the chaotic condition under which all users of drugs must buy. Two applications for membership were received.

Clarissa M. Roehr, *Secretary.*

CITY OF WASHINGTON.

The opening meeting of the City of Washington Branch of the American Pharmaceutical Association was held at the National College of Pharmacy, Wednesday, October 25, 1916.

The papers of the evening were as follows:

The Annual Meeting of the American Medical Association, Mr. M. I. Wilbert.

The Annual Meeting of the American Chemical Society and Exhibit, Dr. L. F. Kebler.

The Annual Meeting of the American Pharmaceutical Association, Mr. S. L. Hilton.

Dr. Kebler was unable to be present on account of being called to attend Court proceedings for the Government, and his paper was presented in part by Dr. Emory, of the Bureau of Chemistry.

Many interesting points were brought out by the speakers and much information was gained that should prove valuable to the pharmacists. Mr. Wilbert exhibited the second edition of New and Useful Remedies, just off the press, and it would seem that the pharmacist should take advantage of this publication and work with the physician along the lines therein indicated. He further spoke of the Social Insurance feature that has been in use in England and other European countries and predicted that more than likely the same would come into existence in this country.

Dr. Emory brought out the main features of the meeting and spoke particularly of the exhibit which was most interesting and showed the great development along chemical lines in the chemical industry.

S. L. Hilton spoke of the Atlantic City meeting; he reported on the President's address, the work of the sections and the entertainments. Mr. Hilton commented that the meeting was a most successful one, especially in view of the threatened railroad strike that was only settled a few days previous.

S. L. Hilton, *Secretary.*

COUNCIL BUSINESS

FIFTH SESSION, 1915–1916.

The fifth session of the Council of the American Pharmaceutical Association for 1915–1916 was held at the Hotel Chalfonte, Atlantic City, on Wednesday, September 6, 1916, at 8 P.M., Chairman E. G. Eberle presiding.

Present: Messrs. Apple, Beringer, Claus, Day, Eberle, Eldred, England, Hilton, Hopp, Koch, Scoville, Snow, Weinstein, Whelpley and Wilbert.

The reading of the minutes of the previous meeting was, on motion, dispensed with.

The following applications for membership were received and favorably acted upon:

No. 439. Eugene H. Cox, 65 Peachtree St., Atlanta, Ga., rec. by C. H. LaWall and W. L. Cliffe.

No. 440. Albert Nesy, 2245 E. 105th St., Cleveland, Ohio, rec. by Lewis C. Hopp and W. F. Hankey.

No. 441. Homer S. Pace, 30 Church St., New York, N. Y., rec. by Harry W. Crooks and Edward A. Sayre.

No. 442. Robert W. Sirkosky, 710 N. Durland Ave., Oklahoma City, Okla., rec. by Charles A. Stockey and Adolph Ziefle.

Motion No. 16 of Council Letter No. 8 (October 30, 1915) provided that the by-laws of the Council be amended at the annual meeting for an Executive Committee of the Council and Motion No. 19 (C. L. No. 9) provided for the publication of Motion No. 16 in the JOURNAL with membership-discussion and final action at the Atlantic City meeting.

Moved by C. M. Snow, seconded by Otto F. Claus, that Motion No. 19 be adopted.

Extended discussion ensued and the motion was not carried.

H. M. Whelpley reported for the Chairman of the Commission on Proprietary Medicines, that the Section on Education and Legislation (to which the Council had referred the recommendations of the Commission) had approved the recommendations made by the Commission.

Wilbur L. Scoville, Vice-chairman of the Committee on National Formulary, presented the following report:

Members of the Council:

GENTLEMEN:

With the publication of the Fourth Edition of the National Formulary in July, 1916, your Committee has practically completed the work for which it was appointed, eight years ago. During six of the eight years your committee has kept closely in touch with the revision of the United States Pharmacopœia, and the publication of the National Formulary was withheld until the Ninth Revision of the Pharmacopœia was also in press. The two books were, therefore, published simultaneously, and are in harmony as to contents and standards.

The new Formulary consists of three parts, the first comprising the formulas and corresponding to the previous editions. Part II includes the drugs and chemicals which are employed in Part I and are not recognized in the U. S. P. IX. Articles in Part II have thus been chosen, not for therapeutic considerations but to establish standards for the ingredients of Part I, which is the essential Formulary. Part III consists of some special tests, taken from the U. S. P. IX by permission of the Board of Trustees of the U. S. Pharmacopœial Convention of 1910, these tests being employed in establishing the standards of some of the articles in the Formulary, thus making the work more complete in itself.

In the present revision 201 formulas have been added, and 183 have been dropped, making an increase of 18 formulas over the third edition. The total number of titles in Part I is 601, of which 12 are descriptive or general, making a total of 589 formulas. Part II contains 188 articles, all of which are new to the Formulary.

The largest class of preparations is the Fluidextracts, there being 90 now in the list, of which 50 were added. Thirty of these were taken from the U. S. P. VIII. The second largest class is the Elixirs, now numbering 79, 23 having been dropped and 10 added. Solutions come next with 54 titles, then Tinctures with 50.

The Fluidglycerates are a new class of preparations, also the Sprays, and Petroxolins are largely increased. These appear to be replacing the liniments as new preparations.

Especial care has been taken to make the Formulary definite in statement and uniform in style, as befits its new status.

Since the first books were published a few typographical errors have been found, which will be corrected before the next printing.

The interest of your committee in the work does not cease with its publication, but we now look forward to further improvements and to future revisions, and therefore desire to make the following recommendations.

1. We recommend that future National Formulary revision committees be appointed for ten-year periods, and that the next committee be appointed at the annual meeting of the Association in 1919.

2. We recommend that provision be made for stationery, postage, and other expenses incident to the work of revision.

3. We recommend that the Council provide for periodical meetings of the committee during the work of revision, not to exceed two of such meetings in one year.

4. We recommend that with the appointment of the committee general principles be outlined for the guidance of the revision, and that thereafter the final decision on all questions pertaining to the revision be left to the committee.

5. We recommend that this committee shall start the compilation of a supplement to the National Formulary IV, consisting mainly of additions and corrections to be submitted to the Association for publication at the annual meeting in 1919.

Respectfully submitted,

Wilbur L. Scoville, *Vice-chairman,*
E. Fullerton Cook, *Secretary.*

Atlantic City, N. J., September 6, 1916.

Recommendation No. 1, that future National Formulary revision committees be elected for ten year periods and that the next committee be elected at the annual meeting of the Association in 1919, was approved.

Recommendation No. 2, that provision be made for stationery, postage and other expenses incident to the work of revision, was considered, but no action was taken.

Recommendation No. 3 was modified to read that, in the opinion of the Committee on National Formulary, it would be advantageous for the Council to provide for periodical meetings of the committee as may be required. The Council concurred in this opinion.

Recommendation No. 4, that, with the election of the Committee on National Formulary in 1919, general principles of revision be outlined for the guidance of the revisers, and that thereafter the final decision on all questions pertaining to the revision be left to the Committee, was adopted.

Recommendation No. 5, that the Committee on National Formulary prepare a "Supplement to the National Formulary, Fourth Edition," consisting mainly of additions and corrections, to be submitted to the Association for publication at the annual meeting in 1919, was adopted.

On motion of W. B. Day, seconded by F. M. Apple, the present Committee on National Formulary was continued until the election of the committee for the fifth edition in 1919.

Moved by Dr. H. M. Whelpley, seconded by Otto F. Claus, that the Chairman of the Committee on National Formulary be requested to present a bill to date covering the expenses of the members of the Committee which had not been paid. No action was taken.

George M. Beringer of the Committee on National Formulary asked to be relieved from further service on the Committee by reason of the pressure of other work.

The warmest expressions of appreciation of Mr. Beringer's work as a member of the Committee were made and the hope entertained that he might reconsider his decision and see his way clear to continue service on the committee, if only in an advisory capacity.

On motion of Dr. H. M. Whelpley, seconded by W. B. Day, action on Mr. Beringer's request was deferred.

The Report of the Committee on Unofficial standards was represented as follows:

Members of the Council:
GENTLEMEN:

During this Association year, the work of the Committee on Unofficial Standards has been devoted, necessarily, to completing the standards for the National Formulary and the editorial work associated with that publication. The monographs constituting Part II of the Revised National Formulary represent largely the studies and the accomplished work of this Committee for several years.

When the Committee was created and its duties outlined, it was decided that the Committee should study drugs and chemical products which were more or less used as medicines or entered into the commerce of the drug trade and for which standards were not, at that time, included in the Pharmacopœia and should prepare proper standards for these. Naturally, our selection of topics for investigation included the more popularly used unofficial drugs. In the U. S. P. IX, many of these drugs and chemicals which your Committee had studied and prepared monographs on were included in the official list, and so much of the work that we had done really became pro-pharmacopœial.

When the Council decided that the Committee on Unofficial Standards should take up the preparation of standards for articles directed in the formulas of the National Formulary for which there were no standards in the U. S. P., the original work of the Committee was diverted to a defined list of topics. Here again, many of the subjects which had received prior consideration by this Committee became applicable to the revision of the National Formulary. It was fortunate that there was a close association between these works, and that several of the members of the Committee on Unofficial Standards were likewise members of one or both of the revision committees of these two legal standards, and so were in a position to coöperate to advantage.

The following list of titles covers topics which have been considered by this Committee and which have not been included in either the Pharmacopœia or the National Formulary:

Acid, Metaphosphoric
Aconite Leaves
Albumin, Blood, Dried
Albumen, Egg, Dried
Ammoniac, Gum Resin
Ammonium Ichthyosulphonate
Anthemis
Antimony Sulphide, Purified
Areca
Arnica Root
Barium Peroxide
Catechu
Calcium Dioxide
Cetraria
Dextrin, Yellow
Eucalyptus Gum
Foenugreek
Iron and Manganese Peptonates
Iron Peptonates
Kola, Fresh
Manganese Peptonate
Magnesium Sulphate, Dried
Menispermum
Peptone
Pitch, Burgundy
Potassium Formate
Potassium Glycerophosphate
Quince Seed
Sage
Salep
Sodium Formate
Sodium Nitrate
Strontium Arsenite
Tea
Tonka
Wine, Port
Zinc Peroxide

It is to be noted that a number of these are of commercial importance and some are extensively used as medicines.

Now that the revisions of the two legal standards have been completed, it becomes a question for the Council to decide whether the Committee on Unofficial Standards shall be continued, and if so, the scope of its work in the future. Is it advisable that this Committee shall continue to work with the Committee on National Formulary and study the drugs and chemicals which are proposed to be included in the revisions of that book? Or can the efforts of the Committee be better devoted to the study of drugs and chemical products for which official standards have not been provided, irrespective of the prospect of their being admitted into the revisions of the Pharmacopœia or the National Formulary? Now that the U. S. P. and N. F. have been revised, it is possible to again prepare a comprehensive list of unofficial drugs and chemical substances.

It is not improbable that further study on the monographs of the National Formulary is desirable; that the statements made should be further verified and the monographs revised for the future revisions. There are likewise some drugs about which there are unsettled questions as to the source or as to the best tests of identity and purity. Even some of the pharmacopœial drugs are not above this criticism, and if it is desirable that the Committee should engage in this scope of the work, it should be included with their assigned duties.

The monographs for the drugs and chemicals that have been deleted from the U. S. P. VIII, but not included in the N. F. IV, could be reviewed and elaborated so as to bring the standards for these articles up to date.

It has been suggested that the standard prepared by this Committee should be submitted to the Committee on Standards of the Association of Official Agricultural Chemists and State Dairy and Food Commissioners and of the several associations representing the wholesale drug trade and manufacturers of pharmaceuticals and chemicals, so as to insure their acceptability and correctness as far as possible.

The Association should likewise decide whether it is the purpose to prepare and publish, in permanent form, the work of the Committee on Unofficial Standards, or how it can be best preserved and made available.

The terms of the following members of the Committee on Unofficial Standards terminate this year: Henry Kraemer, Eustace H. Gane, B. L. Murray and W. A. Puckner.

It becomes the duty of the Council to name four members to complete the complement of the Committee, and likewise to name the chairman for the ensuing year.

George M. Beringer,
Otto Raubenheimer,
M. I. Wilbert,
J. A. Koch,
Frank R. Eldred,
H. H. Rusby,
J. M. Francis,
E. H. Gane.

Atlantic City, N. J., Sept. 5, 1916.

The report was received and the recommendations considered seriatim.

On motion of M. I. Wilbert, seconded by Dr. H. M. Whelpley, it was directed that the Committee on Unofficial Standards be continued, and that its scope be primarily that set forth in the original recommendation for the creation of the committee, but that it shall also continue its work for the National Formulary.

F. M. Apple moved, seconded by M. I. Wilbert, that the title of the Committee on Unofficial Standards be changed to that of the Committee on Standards of Drugs and Chemical Products. Carried.

M. I. Wilbert moved, seconded by F. M. Apple, that the Committee on Standards be made directly and solely responsible for the standards of the drugs and chemicals of Part II of the National Formulary.

Considerable discussion ensued on this question, the consensus of opinion being that while the Committee on National Formulary was solely responsible for the National Formulary, coöperation between the Committee on National Formulary and the Committee on Standards, along the lines indicated, could be had without impairing in any way the responsibility of the Committee on National Formulary for the book.

On motion of W. L. Scoville, seconded by W. B. Day, the Committee on Standards was requested to make further studies on the monographs for Part II of the National Formulary, and also, for the drugs and chemicals that have been deleted from the U. S. P. VIII and have not been recognized in the N. F. IV.

On motion of F. M. Apple, seconded by W. L. Scoville, the advisability of submitting the tentative standards proposed by the Committee on Standards to other organizations, to ensure acceptability and correctness, was approved.

F. M. Apple moved, seconded by W. B. Day, that the prepared monographs of the Committee on Standards be published as reports in the JOURNAL of the Association and preserved, so that when sufficient material has accumulated the monographs may be published as a book of standards under the control and authority of the American Pharmaceutical Association. The motion was carried.

The appointment of successors to four members of the Committee whose terms expire, and the resignation of the Chairman, was referred to the incoming Council for consideration.

The Report of the Committee on Recipe Book was presented as follows:

Members of the Council:

GENTLEMEN:

Your Committee has done considerable work during the year. In the March, 1916, number of the JOURNAL we published two pages of "Pharmaceutical Formulas" and since that four pages each month. Up to August 15, 1916, 285 formulas have been published and those for the September as well as the October number of the JOURNAL are already in type.

The Chairman has mailed eight Bulletins to the members and has also supplied each one with a monthly reprint of the Formulas from the JOURNAL. Both the bulletins on perforated paper and the reprints are filed by the members in a binder supplied for that purpose.

Editor Eberle was also kind enough to mail these reprints to the different pharmaceutical journals, most of which published either all or part of these formulas, giving credit to the Committee and our JOURNAL.

Prof. Hynson of the Committee was kind enough to supply the Chairman with a copy of Unofficial Formulas of Maryland College of Pharmacy 1873, the formulas of which will also be published in the Recipe Book. No doubt some of the members of the A. Ph. A. have similar formularies which might be helpful to the Committee.

Our thanks are due to the following gentlemen, who, although not members of the Committee, have contributed formulas: Prof. Charles H. LaWall and J. Atlee Dean of Philadelphia; Rudolph Landgreen, Youngstown, Ohio; James Carlton Wolf, Baltimore; and Lorentz Cantor, Brooklyn.

It is of course understood that those formulas in U. S. P. VIII and N. F. III which have not been adopted by the new editions of these standards will find a place in the Recipe Book. Exceptions will be made with

(*a*) Preparations of Coca, which are habit forming and which deteriorate very rapidly.

(*b*) Extracts and Fluidextracts, as these are generally not manufactured by the average pharmacist.

Your Committee also intends to publish formulas for Insecticides, Sprays, Veterinary Remedies, Perfumery, Cosmetics, Household Remedies, Toilet Articles, Photo Developers and Solutions, Soda Water Syrups, etc.

Suggestions as to the scope of the book will be thankfully received.

The Committee presents the following recommendations:

1. The title of the committee should be changed to Committee on A. Ph. A. Formulas and Recipes.

The name A. Ph. A. Recipe Book has been unfavorably criticised as pertaining to a "Cook Book" and for that reason the change of name is recommended.

2. The publication of a separate "Collective Index of the Formulas" published in the JOURNAL beginning with Vol. I (1912) up to and including Vol. V (December, 1916). This Index is needed badly and should be continued from year to year until such time as the formulas themselves are printed in separate book form. The chairman will of course prepare this "Index Pharmaceuticus," providing the Council will authorize its publication in the December (1916) number of the JOURNAL.

3. An appropriation of $50 should be provided for in the budget for stationery and postage.

Respectfully submitted,
Otto Raubenheimer, *Chairman,*
P. Henry Utech,
H. P. Hynson,
Irwin A. Becker,
M. I. Wilbert,
Curt P. Wimmer,
W. L. Cliffe,
Wm. H. Glover,
Wilbur L. Scoville,
E. Fullerton Cook.

Atlantic City, N. J., Sept. 5, 1916.

The report was received and the recommendations taken up seriatim, as follows:

Recommendation No. 1 that the title of the Committee on A. Ph. A. Recipe Book be Changed to Committee on A. Ph. A. Formulas and Recipes. Action was postponed until the work of the committee has further progressed.

Recommendation No. 2, that a Collective Index of Formulas (printed in the Journal from 1912 to 1916, inclusive) be published, was approved, the suggestion being made to have the "Index" printed, also, as a separate part of the Index of the December (1916) issue of the Journal.

Recommendation No. 3 that an appropriation of $50 for the expenses of the Committee be included in the 1917 Budget was approved.

A request from the Syllabus Committee for the usual annual appropriation of $25 was presented to the Council by W. B. Day, and on his motion, seconded by G. M. Beringer, was approved and referred to the Committee on Finance.

On motion of W. B. Day, seconded by J. A. Koch, an appropriation of $5000 was directed to be made for the payment of bills for printing the National Formulary, Fourth Edition. The appropriation had the approval of the Committee on Finance.

The motion carried.

The following communication was presented:

Members of the Council:

Gentlemen:

It is customary to elect at the annual meeting of the Council one or more honorary members, men who have distinguished themselves in pharmacy and allied sciences.

One of such is Professor Dr. Heinrich Zoernig. He is a practical pharmacist or "Apotheker" and has been Kustos (curator) of the Botanic-physiological Institute of the University of Munich. He is the author of a number of pharmaceutic-botanical works, of which his "Arznei-Drogen" is the most important; in fact a standard work on "medicinal drugs."

Zoernig is an honorary member of the Philadelphia College of Pharmacy. He has lately been honored with the chair of Pharmacy at the old University of Basel, Switzerland.

I recommend that he be elected an honorary member at Atlantic City. With men like Tschirch in Bern and Zoernig in Basel, the A. Ph. A. will become better known, not only in Switzerland, but throughout the scientific world.

Respectfully, submitted,
Otto Raubenheimer.

Atlantic City, September 4, 1916.

On motion of G. M. Beringer, seconded by Dr. H. M. Whelpley, Prof. Dr. Heinrich Zoernig, of Basel, Switzerland, was elected an honorary member of the American Pharmaceutical Association.

Adjourned to meet on Thursday, September 7, 1916, at 4 p.m.

J. W. England,
Secretary.

ADJOURNED FIFTH SESSION, 1915–1916.

An adjourned meeting of the fifth session of the Council of the American Pharmaceutical Association was held at the Hotel Chalfonte, Atlantic City, on Thursday, September 7, 1916, at 4 P.M., Chairman E. G. Eberle presiding.

Present: Messrs. Apple, Arny, Beringer, Claus, Day, Eberle, Eldred, England, Godding, Hilton, Holzhauer, Koch, Mayo, Stewart, Whelpley and Wilbert.

The change of Rule 14 in the General Rules of the Association as proposed by the Committee on Publication at the fourth session of the Council (action on which was deferred) was considered.

On motion of F. R. Eldred, seconded by Dr. F. E. Stewart, the rule as proposed was adopted as a substitute for Rule 14 of the General Rules.

G. M. Beringer moved, seconded by F. M. Apple, that, in order to determine the net income from the National Formulary, the Treasurer be instructed to charge to the cost of the N. F. IV all the expenditures incurred by the Committee on National Formulary in revising the fourth edition since the appointment of the Committee in 1908. The motion carried.

M. I. Wilbert wished to be recorded as voting in the negative.

On motion of Dr. H. M. Whelpley, seconded by F. M. Apple, a rule was adopted that the Committee on Invested and Trust Funds shall annually recommend to the Council the banks and safe deposit vaults in which the funds and securities, respectively, of the Association shall be kept for the ensuing year.

G. M. Beringer moved, seconded by F. E. Stewart, that the Treasurer be directed to dispose of the jewellery of the Ebert Legacy to the best advantage of the Association, subject to the approval of the Committee on Finance, and that the receipts be credited to the Ebert Legacy Fund. Motion carried.

The subject of honoraria for the members of the Committee on National Formulary was discussed. No action was taken.

On motion of H. V. Arny, seconded by Dr. F. E. Stewart, the Chairman of the Council was directed to appoint a committee of five to study the present methods of revising the National Formulary and to provide for a system of financial control for the next revision of the National Formulary, the committee to report at the next annual meeting.

The deferred Report of the Commission on Proprietary Medicines was considered.

On motion of G. M. Beringer, seconded by S. L. Hilton, the report was adopted.

Applications for membership were received as follows:

No. 443. Roy B. Schlosser, Ph.G., 659 W. Franklin St., Baltimore, Md., rec. by James A. Black and Pinkney M. White.

No. 444. Jamella Fox, 801 S. Broad St. (Howard Hospital), Phila., Pa., rec. by M. R. LaWall and Charles H. LaWall.

No. 445. Mabel Charlotte Starr, Hospital of University of Penna., 3400 Spruce St., Phila., Pa., rec. by M. R. LaWall and Charles H. LaWall.

No. 446. John Coldsmith Cravens, Jr., 1127 E. Susquehanna Ave., Phila., Pa., rec. by E. Fullerton Cook and Charles H. LaWall.

No. 447. Frederick M. Geimer, 51 Salem St., Newark, N. J., rec. by Adolph F. Marquerre and Edward A. Sayre.

The following resolution from the Section of Practical Pharmacy and Dispensing was presented:

"The Section on Practical Pharmacy and Dispensing endorses the recommendation of Ex-president Beringer (made at the Detroit (1914) annual meeting) on the subject of a propaganda for the National Formulary preparations, and asks that the Association grant to the Council the power to carry out this line of work in accordance with the aforementioned recommendation.

On motion of F. M. Apple, seconded by W. B. Day, the resolution was approved and favorably recommended to the Association.

G. M. Beringer moved, seconded by F. E. Stewart, that the selection of the depository of the N. F. Revision and Research Fund be made by the Treasurer and the Committee on Finance. Motion carried.

Adjourned to meet Thursday, September 7, 1916, at 7.30 P.M.

J. W. ENGLAND,
Secretary.

SIXTH SESSION, 1915–1916.

A meeting of the sixth session of the Council of the American Pharmaceutical Association for 1915–16 was held at the Hotel Chalfonte, Atlantic City, on Thursday evening, September 7, 1916, at 7.45 P.M., Chairman E. G. Eberle presiding.

Present: Messrs. Apple, Arny, Beringer, Claus, Day, Eberle, England, Godding, Hilton, Koch, Stewart, Whelpley and Wilbert.

The minutes of the fifth session of the Council were read and approved.

The Council on motion took a recess at 8 P.M. for several hours, reconvening at 10.45 P.M.

W. B. Day moved, seconded by F. M. Apple, that M. I. Wilbert be elected to succeed himself as a member of the Commission on Proprietary Medicines. Motion carried.

F. M. Apple moved, seconded by W. B. Day, that James H. Beal be elected as Chairman of the Commission on Proprietary Medicines. Motion carried.

Adjourned *sine die.*

J. W. ENGLAND,
Secretary.

FIRST SESSION, 1916–1917.

A meeting of the first session of the Council of the American Pharmaceutical Association for 1916–17, or reorganization meeting, was held at the Hotel Chalfonte, Atlantic City, on Thursday evening, September 7, 1916, at 11 P.M.

Present: Messrs. Apple, Arny, Beringer, Day, Eberle, England, Hilton, Koch, Snow, Whelpley, Wilbert and Beal.

F. M. Apple was made Temporary Chairman.

On motion of W. B. Day, seconded by H. V. Arny, Lewis C. Hopp was elected Chairman of the Council.

E. G. Eberle moved, seconded by M. I. Wilbert, that Samuel L. Hilton be elected Vice-chairman of the Council. Motion carried.

On nomination of Dr. H. M. Whelpley, seconded by H. V. Arny, J. W. England was elected Secretary of the Council.

The election of standing committees was held:

W. B. Day nominated, seconded by E. G. Eberle, J. A. Koch as Chairman of the Committee on Finance. Elected.

On motion of W. B. Day, seconded by M. I. Wilbert, E. H. LaPierre and Otto Claus were elected as associate members of the Committee on Finance.

E. G. Eberle moved, seconded by H. V. Arny, that J. W. England be elected Chairman of the Committee on Publication. Motion carried.

On nomination of H. V. Arny, seconded by W. B. Day, the following associate members of the Committee on Publication were elected: G. M. Beringer, H. B. Mason, J. H. Beal and C. A. Mayo.

On motion of H. V. Arny, seconded by M. I. Wilbert, the following Committee on Centennial Fund was elected: F. J. Wulling, Chairman, J. A. Koch and W. B. Day.

On nomination of M. I. Wilbert, seconded by H. V. Arny, the following members of the Committee on Standards of Drugs and Chemical Products (whose terms have expired) were re-elected: Henry Kraemer, Eustace H. Gane, B. L. Murray and W. A. Puckner.

On nomination of H. V. Arny, seconded by W. B. Day, George M. Beringer was elected Chairman of the Committee on Standards of Drugs and Chemical Products.

H. V. Arny nominated, seconded by F. M. Apple, the following Committee on Invested, Savings and Trust Funds: W. B. Day, Chairman, Charles Holzhauer, E. G. Eberle and H. M. Whelpley, *ex-officio.* Motion carried.

On nomination of F. M. Apple, seconded by W. B. Day, the following Auditing Committee was elected: Otto F. Claus, Chairman, Charles Gietner and J. W. Mackelden.

On motion of J. H. Beal, seconded by H. V. Arny, a committee of three was directed to be appointed by the Chairman of the Council to revise the By-laws of the Council, to report at the next annual meeting.

On motion of W. B. Day, seconded by F. M. Apple, Rule 7 of the General Rules was changed to read as follows:

Rule 7. Annual Report of Treasurer, General Secretary and Editor: The Treasurer, General Secretary and Editor shall balance their books on January 1 of each year and shall make out, previous to the fifteenth day of February following, their annual reports for the financial year just closed.

On motion of W. B. Day, seconded by F. M. Apple, Rule 8 of the General Rules was changed to read:

Rule 8. Auditing of Accounts of Treasurer, General Secretary and Editor. The Treasurer, General Secretary and Editor having thus balanced their books and made out their reports shall place all such books, accounts, vouchers, etc., with the reports, at the disposal of the Chairman of the Auditing Committee at such time and place in February of each year as the said Chairman may direct.

On motion of W. B. Day, seconded by F. M. Apple, Rule 9 of the General Rules was changed to read:

Rule 9. Return of Books to Treasurer, General Secretary and Editor. Said books, accounts, vouchers, saving bank books and accounts of the same shall be returned to the Treasurer, General Secretary and Editor, respectively, within two weeks of the date of their reception by the Chairman of the Auditing Committee.

The Treasurer submitted to the Council the list of delinquent members of the Association, as required by the rules.

Vice-chairman Hilton then assumed the chair, thanking the Council for his election to the office of Vice-chairman.

The election of officers for the ensuing year (1916–17) was held, as follows:

H. M. Whelpley nominated, seconded by M. I. Wilbert, John O. Burge, of Nashville, Tennessee, as Honorary President.

E. G. Eberle nominated, seconded by J. W. England, Oliver F. Fuller, of Chicago, as Honorary President.

Mr. Burge was elected.

J. A. Koch nominated, seconded by E. G. Eberle, H. V. Arny as Reporter on the Progress of Pharmacy. Elected.

W. B. Day nominated, seconded by G. M. Beringer, Dr. H. M. Whelpley as Treasurer. Elected.

G. M. Beringer nominated, seconded by H. V. Arny, William B. Day as General Secretary. Elected.

J. W. England nominated, seconded by G. M. Beringer, Eugene G. Eberle as Editor. Elected.

G. M. Beringer asked to be excused from serving as Chairman of the Committee on Unofficial Standards of Drugs and Chemical Products for 1916–17, by reason of pressure of other work, and on motion of J. H. Beal, seconded by H. M. Whelpley, his election was reconsidered, and the motion to elect was amended by substituting the name of J. A. Koch for that of G. M. Beringer. The substituted motion was adopted and J. A. Koch was declared elected.

H. V. Arny moved, seconded by H. M. Whelpley, that a rising vote of thanks be tendered to Eugene G. Eberle for his able service as Chairman of the Council for the past five years.

Adjourned to meet Friday, September 8, 1916. at 9.30 A.M.

J. W. ENGLAND,
Secretary.

SECOND SESSION, 1916–1917.

The second session of the Council of the American Pharmaceutical Association for 1916–1917 was held at the Hotel Chalfonte, Atlantic City, on Friday, September 8, 1916, at 10.30 A.M.

Present: Messrs. Arny, Claus, Day, Eldred, England, Hilton, Koch, Whelpley and Stewart.

The minutes of the previous session were read and approved.

W. B. Day moved, seconded by J. A. Koch, that the Committee on Transportation for 1915–1916 be re-elected for 1916–1917. Motion carried.

The Committee on Transportation consists, therefore, of: Thos. F. Main, Chairman, New York, N. Y., Wm. B. Day, Chicago, Ill., Lewis C. Hopp, Cleveland, Ohio, H. M. Whelpley, St. Louis, Mo., Charles G. Merrell, Cincinnati, Ohio, Charles Caspari, Baltimore, Md., Fred I. Lackenbach, San Francisco, Cal., E. Floyd Allen, Minneapolis, Minn., F. C. Godbold, New Orleans, La., W. S. Elkins, Jr., Atlanta, Ga., C. Herbert Packard, East Boston, Mass., F. W. Nitardy, Denver, Col., with the General Secretary and Local Secretary, *ex-officio* members.

F. E. Stewart moved, seconded by H. V. Arny, that W. L. Scoville, W. H. Glover and Curt P. Wimmer of the Committee on Recipe Book (whose terms expire in 1916), be re-elected for five-year terms. Motion carried.

W. B. Day moved, seconded by Dr. F. E. Stewart, that Otto F. Raubenheimer be re-elected as Chairman of the Committee on Recipe Book.

Adjourned until 2.30 P.M.

J. W. ENGLAND,
Secretary.

ADJOURNED SECOND SESSION, 1916–1917.

The adjourned second session of the Council of the American Pharmaceutical Association for 1916–1917 was held at the Hotel Chalfonte, Atlantic City, on Friday, September 8, at 2.30 P.M., S. L. Hilton presiding.

Present: Messrs. Hilton, England, Arny, Whelpley, Day, LaPierre, Utech, Eldred, Eberle, Wilbert, Hopp and Mayo.

Resolutions passed by the House of Delegates and referred to the Council were considered as follows:

No. 1—Resolved, that the House of Delegates recommends the adoption of the following amendment to the By-laws of the Association: "That there be and hereby is created a House of Delegates to have and exercise such functions as may be hereafter specified by the Association.

Approved by the Council.

No. 2—Resolved by the House of Delegates, that if the House of Delegates is continued that Chapter II, Article 1, of the By-laws of the House of Delegates be amended to read as follows:

Chapter II, Article 1—Representation. The membership of the House of Delegates shall consist of three regularly appointed delegates from each state pharmaceutical association, from the District of Columbia Association and from similar associations in Porto Rico, the Philippines and any other foreign American states.

Delegates from all other bodies or organizations shall have the privileges of the floor but shall not have the right to vote.

Approved by the Council.

No. 3—Resolved that the American Pharmaceutical Association approves the idea of the Metric Conference to be held in New York during December, 1916, and authorizes its Committee on Weights and Measures to participate in such a conference.

Resolved that the Association expresses the hope that the National Wholesale Druggists' Association will also take steps to appoint a committee to take part in the proposed conference, and that the General Secretary be directed to communicate with the N. W. D. A.

Approved by the Council.

No. 4—*Whereas* the revised regulations of the U. S. Public Health Service, approved by the President, March 4, 1913, prescribed a new scale of pay for the pharmacists; said pay being a small increase in their compensation and to become effective January 1, 1914; and

Whereas on the same date the revised regulations were approved by the President (March 4, 1913) Congress passed an Act making appropriations for the Legislative, Executive and Judicial expenses for the Government for the fiscal year ending June 30, 1914, Section 7 of which reads in part as follows:

Sec. 7. That no part of any money contained herein or hereafter appropriated in lump sum shall be available for the payment of personal services at a rate of compensation in excess of that paid for the same or similar services during the preceding fiscal year; and the Heads of Departments shall cause this provision to be enforced; and

Whereas Sec. 7 as quoted above prevented the new scale of pay for the pharmacists from becoming effective, for the reason that it was a slight increase over what they received the preceding fiscal year; and

Whereas on August 14, 1912, Congress passed an Act authorizing the U. S. Public Health Service to study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage and the pollution either directly or indirectly of navigable streams and lakes of the United States; and

Whereas when subsequent appropriations were made and became available for the new duties imposed upon the Public Health Service by the Act of August 14, 1912, it was found that the volume and character of the work of the pharmacists were greatly increased by reason thereof; and

Whereas this same Act of August 14, 1912, increased the volume and changed the character of the work of the professors in the Hygienic Laboratory, and their case submitted to the Comptroller of the Treasury, and the Comptroller having rendered an opinion, dated April 18, 1914, in which he held that the increased volume of work and change of character of work, due to the Act of August 14, 1912, were sufficient to take their case out of the statute (Sec. 7 quoted above); and

Whereas this same Act of August 14, 1912, increased the volume and changed the character of the work of the pharmacists in the same manner as the professors, and probably to a much greater degree, and

Whereas the pharmacists of the Public Health Service have had no increase in pay for about 14 years; therefore be it

Resolved, that the American Pharmaceutical Association, now in session at Atlantic City, N. J., earnestly requests Surgeon-General Rupert Blue, U. S. Public Health Service, and the Hon. Wm. G. McAdoo, Secretary of the Treasury, to use their best efforts in submitting the case of the pharmacists to the Comptroller of the Treasury, as was done in the case of the professors in the Hygienic Laboratory, in an effort to get their case removed from the statute (Sec. 7 quoted above); in order that the new scale of pay for the pharmacists as prescribed in the revised regulations approved by the President March 4, 1913, may be made effective at the earliest possible opportune time; and be it further

Resolved that copies of this resolution be forwarded by the Secretary of this Association to the Hon. Wm. G. McAdoo, Secretary of the Treasury, and Surgeon-General Rupert Blue, U. S. Public Health Service, Washington, D. C.

Approved by the Council.

No. 5—Resolved, that the American Pharmaceutical Association accept the invitation of the Joint Committee on Nomenclature of the American Association of Nurserymen and the Ornamental Growers Association to appoint a Committee to coöperate with them in bringing about uniformity in certain plant names, and that the incoming President be instructed to appoint a Committee of three for this purpose.

Approved by the Council.

Adjourned to meet at the call of the Chair.

J. W. ENGLAND,
Secretary.

THIRD SESSION, 1916–1917.

The third session of the Council of the American Pharmaceutical Association for 1916–17 was held at the Hotel Chalfonte, Atlantic City, on Friday, September 8, 1916, at 6 P.M., L. C. Hopp presiding.

Present: Messrs. Hopp, Hilton, Wilbert, Beal, Seltzer, Apple, Whelpley, Eberle, Day, Alpers, Claus, Eldred and England.

M. I. Wilbert brought to the attention of the Council the exceedingly valuable services that George M. Beringer had rendered the Association in the preparation of text for the National Formulary, Fourth Edition, and in the framing of standards for Part II of that book, and urged that suitable resolutions of appreciation be passed, and also, that an honorarium be given to Mr. Beringer.

Extended discussion ensued, the consensus of opinion being that Mr. Beringer had rendered invaluable services to the Association, which should have proper recognition.

On motion of F. M. Apple, seconded by J. H. Beal, it was moved that suitable resolutions of appreciation of George M. Beringer's services as Chairman of the Committee on Unofficial Standards and in the preparation of the text of the National Formulary, Fourth Edition, be prepared and presented to Mr. Beringer.

J. H. Beal moved, seconded by E. G. Eberle, that the Council recommend to the Association the appropriation of the sum of one thousand dollars to pay an honorarium to George M. Beringer, and as a partial expression of appreciation of the Association for his invaluable services in the revision of the National Formulary, Fourth Edition, and in the preparation of standards for the drugs and chemicals therein contained, the honorarium to be paid out of the National Formulary Revision and Research Fund. The motion carried.

Adjourned.

J. W. England,
Secretary.

NATIONAL COMMITTEE ON THE PHARMACEUTICAL SYLLABUS.

Bulletin VII.

There will be a meeting of the Committee at the Hotel Chalfonte, Atlantic City, N. J., on Thursday, September 7, 1916, at 5 p.m.

PROGRAM.

1. Roll call.
2. Report of Secretary-treasurer.
3. Discussion of proposed addition to the Syllabus to cover one year of graduate work, leading to the degree of *Pharmaceutical Chemist.*
4. Discussion of general plans for the next revision of the *Syllabus.*
5. Miscellaneous business.
6. Election of Officers.
7. Adjournment.

(Bulletin VIII was printed in October number of the Journal, p. 1146.)

Willis G. Gregory,
Chairman.

Boston, Mass, August 25, 1916.

Theodore J. Bradley,
Secretary-treasurer.

Bulletin IX.

Financial Report of the National Committee on the Pharmaceutical Syllabus, august 1, 1915 to august 31, 1916.

Receipts.

Balance from last years' account	$18.87
Proceeds of note, dated September 20, 1915	97.95
Sale of 77 copies of the *Syllabus*	85.27
American Pharmaceutical Association	25.00

American Conference of Pharmaceutical Faculties	$25.00
National Association of Boards of Pharmacy	25.00
Cash advanced by Secretary-treasurer	46.33
	$323.42

Expenditures.

Paul Revere Trust Company, note due Sept. 20, 1915	$200.00
Paul Revere Trust Company, note due Jan. 20, 1916	100.00
Postage	11.72
Typewriting and duplication of Bulletins	6.00
Printing	2.50
Premium, insurance on plates for printing *Syllabus*	2.00
Exchange on checks	1.20
	$323.42

In September, 1914, just after the second edition of the *Syllabus* was issued and the advance orders delivered and paid for, the Committee was nearly four hundred dollars in debt. In September, 1915, this debt was reduced to about two hundred dollars, and at the present time the debt amounts to but $46.33, which will undoubtedly be fully paid during the next two months.

There are 218 copies of the *Syllabus* on hand, which will probably supply the decreasing demand until the third edition appears.

[*Signed*] THEODORE J. BRADLEY,
Secretary-treasurer.

Examined and found correct, September 15, 1916.

GEO. C. DIEKMAN,
Committee on Audit.

BULLETIN X.

Minutes of the meeting of the National Committee on the Pharmaceutical *Syllabus* held at the Hotel Chalfonte, Atlantic City, N. J., September 7, 1916.

Present: W. C. Anderson, G. C. Diekman, C. B. Lowe, and T. J. Bradley.

C. B. Lowe was elected as chairman, *pro tem.*

The Secretary-treasurer submitted the financial report for the thirteen months ended on August 31, 1916. (This report has been distributed as Bulletin IX.)

G. C. Diekman was appointed as a Committee to audit the accounts and vouchers of the Secretary-treasurer.

The proposed addition to the *Syllabus* to cover one year of graduate work, leading to the degree of Pharmaceutical Chemist, was discussed and it was voted to postpone action on this matter.

General plans for the next revision of the *Syllabus* were discussed, but no action was taken.

Willis G. Gregory, of Buffalo, N. Y., and Theodore J. Bradley, of Boston, Mass., were re-elected as Chairman and Secretary-treasurer, respectively.

Meeting adjourned.

THEODORE J. BRADLEY,
Secretary.

REPORT OF THE GENERAL MEMBERSHIP COMMITTEE.

TO THE PRESIDENT AND MEMBERS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION:

The membership campaign has proceeded along the same general lines as last year, though with somewhat better results.

A large committee consisting of over two hundred was appointed by President Alpers early in the year. This was divided into eight geographical districts, each including from five to twelve states, excepting the eighth which comprised British North America. Besides these sub-committees, there were six special sub-committees containing thirty members, making a total of nearly two hundred and fifty members engaged in membership work.

Each district chairman, state chairman, and committee member received several letters from the Chairman during the year; a special effort was made to recruit members at state association meetings and the plan of having a "Rally Day" was tried.

The results have been rather uneven, excellent in some states, poor in others; New York added over a hundred new members, a showing made possible by the vigorous campaign carried on by the New York Branch and for which Mr. Frank L. McCartney and Dr. Jacob Diner deserve a great deal of credit. Illinois secured thirty-one, for which Mr. Wm. Gray, State Chairman, deserves a large share of credit. Ohio, where the campaign was directed by President Alpers and Mr. E. R. Selzer, brought in twenty-nine candidates. Pennsylvania, largely through the Philadelphia and Pittsburgh Branches and State Chairman Utech, obtained thirty-six. The newly organized Indianapolis Branch is chiefly responsible for the twenty-three new members from Indiana. Mr. Holzhauer and Professor LaWall and their colleagues added twenty-three from New Jersey. Mr. R. H. Walker, actively assisted by Editor Eberle, secured eighteen from Texas. Chairman Weicker secured fourteen from Connecticut. The new Cuban Branch brought in thirteen members. Twenty or more of the hospital stewards of the U. S. Navy joined as a result of the efforts of Mr. J. F. Rupert. Mr. J. G. Beard, of North Carolina, brought in ten new members. Kansas added ten; California, Massachusetts and Iowa each added nine; Michigan, eight, and twenty-seven other states each six or less.

In all, four hundred and forty-seven members have been added since the San Francisco meeting. A tabulation follows:

New Members Elected During the Period Between Aug. 15, 1915 and Sept. 9, 1916.

Alabama	0	New Hampshire	1
Alaska	2	New Jersey	23
Arizona	0	New Mexico	0
Arkansas	0	New York	108
California	9	North Carolina	10
Colorado	6	North Dakota	5
District of Columbia	3	Ohio	29
Connecticut	14	Oklahoma	3
Delaware	1	Oregon	1
Florida	4	Pennsylvania	36
Georgia	0	Philippine Islands	1
Hawaiian Islands	0	Porto Rico	0
Idaho	2	South Carolina	3
Illinois	31	South Dakota	4
Indiana	23	Tennessee	2
Iowa	9	Texas	18
Kansas	10	Utah	0
Kentucky	2	Vermont	1
Louisiana	5	Virginia	4
Maine	7	Washington	6
Maryland	4	West Virginia	3
Massachusetts	9	Wisconsin	3
Michigan	8	Wyoming	0
Minnesota	3	Canada	1
Mississippi	2	Cuba	13
Missouri	2	Foreign	7
Montana	5		
Nebraska	4	Total	447
Nevada	0		

Wm. B. Day, *Chairman.*

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, J. H. BEAL, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

ERRATA IN ALCOHOLOMETRICAL TABLES OF U. S. P. IX.

Dr. A. B. Lyons sends in the following corrections that should be made in Table for Temperature Corrections on pages 636 and 637 in the earlier printings of the ninth revision of the U. S. Pharmacopœia: on page 636, column headed 6 percent, line 9, for 1.10 read 1.20; 10 percent column, line 16, for 2.85 read 2.95; line 16, 28 percent column, for 5.70 read 5.80; column headed 30 percent, line 6, for 2.28 read 2.18. On page 637, column headed 67 percent, line 11, for 3.33 read 3.58, and 86 percent column, line 13, for 3.51 read 3.57.

CORRECTIONS TO BE MADE IN ARTICLE ON "CHANGED ALKALOIDAL STANDARDS IN U. S. P. IX."

The following corrections should be made in article, Changed Alkaloidal Standards in United States Pharmacopœia IX, pp. 1118 to 1120, October issue of the JOURNAL.

On page 1119, in paragraph marked (A) and second line, "Column II" should read "Column I of the table. Example,—to adjust," etc.

In last paragraph, p. 1119, first line, "tincture" should read "fluidextract of belladonna root."

"Column II" in third line of p. 1120, should be "Column I."

EX-PRESIDENT W. C. ALPERS IMPROVING.

Members of the American Pharmaceutical Association will regret to learn that Ex-President W. C. Alpers recently had to undergo a surgical operation. Information has come to the office of the JOURNAL that the patient is improving and is now at his home. It may require several weeks before complete recovery and Dr. and Mrs. Alpers have the sympathy of members and friends, who join in best wishes for Dr. Alpers' speedy restoration to perfect health.

POISONS BY PARCEL POST.

It is reported that Postmaster-General Burleson is working on an amendment of the postal laws which will permit the shipment of poisonous drugs, including narcotics, through the mails as parcel post.

This question has been before the department a long time and physicians, druggists and dentists have urged the advantage in permitting them to obtain direct from manufacturers drugs of this class. Such provision has been advocated by various associations and more particularly by the National Association of Manufacturers of Medicinal Products, who prepared and had introduced in Congress a bill permitting the mailing of poisons under reasonable restrictions.

It is desired by the Postoffice Department in framing this amendment to the postal law to so guard it that such drugs will not fall into the hands of unprofessional people or those who will use them in any way that would be a violation of the law, so that the utmost care will be exercised in this respect.

AMENDMENTS TO THE HARRISON LAW ARE CONTEMPLATED.

It is reported that in the forthcoming annual report of the Secretary of the Treasury will be further recommendation for legislation amending the Harrison Narcotic Act to meet objections raised by the recent decision of the Supreme Court of the United States.

Just what form this recommendation will take has not yet been determined, but there have been several conferences between officials of the Treasury Department and of the Department of Justice in order to determine what should be done.

SALE OF DRUGS FOR VENEREAL DISEASES PROHIBITED IN AUSTRALIA.

Clause 5, of a bill relating to the sale of drugs for venereal diseases in the Legislative Assembly of Victoria, reads:

"No person other than a medical practitioner or a person acting under the direct instructions of a medical practitioner, shall attend upon or prescribe for *or supply any drug to any person* suffering from any venereal disease for the purpose of curing, alleviating or treating such disease." Penalty, up to £50, or to imprisonment with or without hard labor for a term of not more than six months.

A sub-clause stated that the section should not apply "to a registered pharmaceutical chemist who dispenses to the patient of a medical practitioner the prescription of such practitioner."

In Western Australia and Queensland somewhat similar legislation is in force, but provides for the right of the pharmacist to sell any drug or proprietary medicine, if he does not tender any advice.

Such legislation may be contemplated in this country, and this is the reason for calling attention to the Australian legislation, so that the subject may be studied.

BUREAU OF CHEMISTRY TO ASK INVESTIGATION OF DRUG WAREHOUSES AND FACTORIES.

With the assigned purpose of assuring the quality of American crude and manufactured drugs that are exported, the Bureau of Chemistry, U. S. Department of Agriculture, is planning to ask Congress for authority to enter and examine drug factories and storage houses for drugs.

It is stated that charges have been made in some quarters, that drugs manufactured in this country and exported have been adulterated, and that such practices might seriously injure American export drug trade. It is admitted that adulteration abroad would not be prevented, but assurance could be given, if the request of the Bureau is granted and the means supplied for such inspection, that the drugs are up to standard when exported from this country. Under present working conditions such inspection is impossible, and the only means of investigation is by purchase in the open market, whereby the quality of drugs for exportation is not always indicated.

PREVENTION OF ADULTERATION.

The members of the National Wholesale Druggists' Association are deeply concerned, for their own protection as well as their patrons', in guarding against purchase of adulterated and sub-standard drugs. The following resolutions were adopted by that organization at the Baltimore meeting:

Resolved, That the Association instruct the chairman of the incoming Committee on the Prevention of Adulteration to take such action as may seem to him desirable to urge upon the United States Department of Agriculture that they give prompt publicity to such standards and tests as they may establish and discover, together with an exact description of the methods employed, so that the members of this Association may be guarded against the purchase of drugs that may be below standard or adulterated in preference to the present custom of keeping those standards and tests for the use of the department only.

Inasmuch as Section 11 of the Food and Drugs Act is in direct opposition to the constitutional rights of the citizens of the United States, since by its provisions an official of the United States Government has the absolute power of deciding a case involving considerable sums of money without an appeal to the courts:

Be It Resolved, That the incoming Chairman of the Committee on Legislation be instructed to take such action as he may deem desirable to have the law amended so that an appeal to the courts shall be allowed.

Inasmuch as the present methods of inspection and action at the various ports of entry are leading to serious inequalities in the administration of the Food and Drugs Act:

Be It Resolved, That the incoming Chairman of the Committee on the Prevention of Adulteration be instructed to take such action as may seem to him desirable, perhaps in conjunction with the National Drug Trade Conference, in order that there may be greater uniformity in action at the various ports of entry, and so that he may urge upon the United States Department of Agriculture that the action taken in any case may become a matter of public record, and be used by both officials and importers as a guide to govern them in future transactions, as it is now the case in the appraiser's department.

And that a copy of these resolutions be forwarded to the Secretary of Agriculture for his consideration.

NEW SOURCES OF POTASH.

Experts of the Bureau of Mines demonstrated some months ago that potash in paying quantities can be extracted by electrical devices from the fumes of Portland cement plants, and according to the *Scientific American* numerous cement establishments in all parts of the country are installing the necessary machinery to save this hitherto wasted by-product. There was some question as to whether the cement industry would furnish enough potash for home consumption even if all plants installed the fume-precipitating devices; but recently the Bureau of Mines has found that in another of our dominant industries—steel and iron making—tons of priceless potash are being sent skyward in fumes from blast furnaces. Experiments in the electrical recovery of this potash are being made by one pioneer steel concern and are being watched with interest by the Government metallurgists. If this newest possible source for the fertilizer ingredients so sorely needed by American agriculture proves as valuable as early experiments indicate that it may, it is probable that more than enough by-product potash for home consumption can be produced in this country from the two great metallurgical industries, lowering at the same time the cost of iron, steel and cement.

IMMERSION FOR MICROSCOPIC OBJECT-GLASSES.

Edward M. Nelson, writing in the *English Mechanic,* states that microscopists should know that it is now almost impossible to procure proper immersion oil for microscope object-glasses. Continuing, Mr. Nelson says "that the proper fluid was invented by Prof. Abbe, and has been sold only by the firms of Winkel and Zeiss. The 'cedar oil' as commonly sold, and also the immersion fluid of Leitz, have not the requisite optical properties, therefore objectives immersed with them do not yield their best results. Prof. Abbe experimented with a large number of substances, and devised several immersion fluids. The following is the formula of the one he adopted. He has now been dead some years, and I do not know if any alteration has since been made in this fluid except in its price, for the amount one now gets for 1s. is about one-third of what could be purchased formerly. This is Abbe's formula: The ingredients are three, viz.: 1. White oily *tacamaque* of Guibourt. 2. Oil of cedar (*Juniperus virginiana*). 3. Castor oil. The proportions are: 29 grammes of *tacamaque* dissolved in 22 cubic centimeters of *cedar oil;* to which is added 14 cubic centimeters of *castor oil.*"

A NEW VEGETABLE DYE.

According to *Commerce Reports* Vijao is the local name of a plant that natives of Porto Rico use as a source of dye. It is claimed that an ink of exceptional fastness is made from the seeds of this plant, which has been identified botanically as *Renealmia exaltata,* of the *Zingiberaceæ.*

Vijao is as yet but little known in most parts of the West Indies. In general appearance and manner of growth the plant is not unlike that of cultivated ginger, the chief difference lying in the arrangement of the flowers. In the case of vijao these are arranged in a panicle, while those of the ginger plant are more or less in the form of a cone-shaped spike.

It appears from various well-authenticated reports that this plant and some very closely related forms are distributed over a very extensive territory. Vijao grows on a number of the West Indian Islands and is found also in the Guianas and in Brazil. The Brazilians call this plant "papatinga," which has relation to its tinctorial properties. In some parts of Brazil it is popularly known as pacova, and the seeds, which are called "fructos de pacova," are said to be collected for the purpose of making a bright red dye of common local use.

While the principal value of this plant is for its seeds in making dye, it is worthy of notice also because of its use as an article of food and as a drug. Vijao is an herb with a creeping rhizome or underground rootstock similar to that of the ginger plant, and in some parts of the West Indies these rhizomes are collected from the wild plants and used for the same purposes as the true ginger. Both the seeds and rhizomes are employed medicinally as an aromatic tonic. The seeds serve also as an anthelmintic. The leaves are used locally as a cure for a number of ordinary ailments.

OBITUARY

EDWIN P. BURLEIGH.

Edwin P. Burleigh, member of the American Pharmaceutical Association, died at his home in Boston, Mass., October 19th. Mr. Burleigh was born at East Wakefield, N. H., sixty-two years ago; he came to Boston before he reached his majority and graduated from the Massachusetts College of Pharmacy in 1877.

On coming to Boston, he was employed by the firm of which he became a partner, namely, Melvin and Badger, one of the leading dispensing pharmacies of Boston. For a time Mr. Burleigh was quite active, both in the American Pharmaceutical Association and the Massachusetts Pharmaceutical Association, but in later years he seldom attended the meetings. After the Association met in Boston, Mr. Burleigh again affiliated and continued his membership.

CHARLES BOWEN ALLEN.

Charles Bowen Allen, a former President of the Pharmaceutical Society of Great Britain, died September 30th, at Weston-super-Mare. After passing his Major in 1876, Mr. Allen purchased the pharmacy at 20 High Road, Kilburn, which had been established in 1846. He was active in the work of various pharmacy associations, and for a number of years Chairman of the Journal and Publications Committee (England). The *Journal* says that even after his retirement from the Council, when he might well have rested on his laurels, he continued active service for pharmacy as a member of the Council of the Proprietary Articles Trade Association and a director of the Chemists' Defence Association, in both of which connections his ripe business experience and pre-eminently practical sagacity proved a new source of support and strength in the deliberations and work of these bodies.

In concluding its tribute to Mr. Allen, the *Journal* says: "His record is an imperishable part of the history of the (British Pharmaceutical) Society, and as long as memory holds its seat there will remain enshrined in many a heart tender and reverent posthumous homage for him who, having so faithfully served his day and generation, has, in the fulness of time, fallen on sleep and rests from his labours."

SOCIETIES AND COLLEGES

REPORT ON THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION.*

By F. E. Stewart, Ph.G., M.D., Phar.D.

The Section on Pharmacology and Therapeutics of the American Medical Association held its sessions in the roof garden of the Tuller Hotel, at the sixty-seventh annual session of the Association at Detroit, June 12–16, 1916. The officers of the Section were: Chairman, R. A. Hatcher, M.D., of New York; vice-chairman, J. R. Arniell, of Denver; Secretary, M. I. Wilbert, of the Bureau of Hygiene, Washington, D. C.; executive committee, Torald Sollmann, of Cleveland; Ray L. Wilbur, M.D., of San Francisco; John F. Anderson, M.D., late Director of the Bureau of Hygiene, Washington, D. C.

Professor Joseph P. Remington was Chairman of the delegation from the American Pharmaceutical Association.

The sessions of the Section were of unusual interest to pharmacists, especially those papers and reports relating to the Council on Pharmacy and Chemistry of the American Medical Association.

Prof. Sollmann described the work of the Therapeutic Research Committee of the Council. He stated that its object is to introduce light into the darker places of medicine. For that purpose the Committee was founded by the Council on Pharmacy and Chemistry, and funds were placed at its disposal by the trustees of the Association. The endeavor of the Committee is to focus the attention of the experimental and clinical investigators on some of the urgent but neglected problems of practical therapeutics, and help to bridge the chasm between science and its application. The author briefly reviewed the work of the Committee since its organization in 1912, and said that the results of the work done under its auspices during the four years of its existence appears to demonstrate that the hope expressed at the time of its organization was not unfounded.

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*Read at the October meeting of Philadelphia Branch American Pharmaceutical Association.

Professor W. A. Puckner, Secretary of the Council on Pharmacy and Chemistry, reported on the work of the Chemical Laboratory of the American Medical Association. He stated that the Laboratory was established nearly ten years ago, to aid the Council on Pharmacy and Chemistry in investigating the composition of drugs advertised to physicians, also to aid the various departments of the *Journal of the American Medical Association,* analyzing "patent medicines" for the Journal Propaganda for Reform Department, answering the queries of readers of the Journal, preparing reviews of pharmaceutical and chemical literature and examining editorials and original contributions to check chemical data. He also stated that the Chemical Laboratory of the Association was attempting to establish standards for little-used drugs. While, of course, the Laboratory cannot undertake to prove the composition of every pharmaceutical substance, he said that it tries to check all doubtful claims for substances of general interest to physicians. One of the results of the work of the Laboratory was shown by the fact that fewer proprietary medicines are marketed under false claims to-day than there were ten years ago. No product accepted by the Council on Pharmacy and Chemistry has later been shown to be untrue to its claimed composition. These two facts in the estimation of Professor Puckner indicate that the Laboratory has succeeded in the task it was created to perform.

Martin I. Wilbert presented an important paper, entitled "Useful Drugs: Their Origin and Development of the Book." "Useful Drugs" is the title of a book published by the American Medical Association for the use of the medical profession.

M. W. Glover and F. B. Morgan, of Washington, D. C., donated a paper entitled "Some Advantages of an Authoritative Publication on the Use of Drugs," in which they gave a history of the Food and Drugs Act of June 30, 1906, as applied to medicines. They pointed out the importance of the Sherley Amendment as a means of checking the publication of misleading advertisements in regard to alleged new remedies, and called attention to the fact that the Supreme Court had interpreted this Amendment in such a manner as to please those who were opposed to creating a factitious demand by misleading advertisements. The authors also pointed out the desirability of reform in the manner of presenting data relative to therapeutic uses of drugs, and advocated a more scientific method.

Dr. Carl L. Alsberg, Chief Chemist of the Bureau of Agriculture, donated a very interesting paper on the "Saponins," their occurrence, chemical and physical properties, effect on the surface tension of solutions, hemolytic and cytolytic properties in relation to cholesterin metabolism, effect of feeding small amounts over long periods and their therapeutic value.

The remainder of the papers were of more particular interest to the medical profession than to the pharmacist, although a number of them contained information of value to the pharmaceutical profession.

Professor Victor C. Vaughan of the University of Michigan contributed a most interesting paper to the Section on Pathology and Physiology, entitled "Additional Facts Concerning the Protein Poison." You are doutless aware that Vaughan has demonstrated by his own method that all of the proteins are capable of being split up into two portions, one of them poisonous and the other non-poisonous, the latter possessing the peculiar property of stimulating the body cells to produce a specific proteolytic enzyme or digestive ferment when injected into the animal body. The protein molecule, according to Vaughan's theory, is made up of two chemical groups, namely, a central group, keystone or archon, and a secondary group or groups of atoms. The archon is the poisonous group. The secondary group is the part which stimulates the formation of the specific enzyme.

When a person is suffering with an infectious disease, the symptoms of toxemia are due to the poisonous group of the bacterial protein, and the recovery of the patient, when recovery occurs, is largely due to the specific proteolytic ferment resulting from the stimulation of the secondary group. This specific ferment digests and destroys the invading bacteria. It is well known that immunity of more or less duration follows the attack of certain infectious diseases, such as typhoid fever. This immunity, according to Vaughan, is due to the fact that the body cells, having acquired the power of producing this specific proteolytic ferment, are capable of defending themselves the next time they are attacked by promptly producing such ferment.

Vaughan reported that since his last publication on the subject, he had ascertained the following facts:

1. Casein yields a large percent of the protein poison.
2. The protein poison after the removal of all traces of mineral acid is strongly acid in and of itself.
3. The protein poison does not give the ninhydrin test, but does do so after being split up with acid.
4. The poison gives a skin reaction in all persons.
5. The poison is not without harm when administered by mouth.
6. Animals may be acutely or chronically poisoned by oral administration.
7. In chronic poisoning by feeding extensively, fatty degeneration results.
8. The protein poisons from diverse proteins are not identical.
9. The protein poison from casein combines with certain unbroken proteins. In this combination the acidity of the poison is neutralized and its physiological action diminished.
10. From the tissues of animals killed with the protein poison it may be extracted with acidified alcohol and its presence demonstrated and amount roughly estimated by intravenous injections of guinea-pigs.

Much attention was given to the question of chronic mouth infections and their management by the Section on Stomatology. Dr. Frederick Morehead of Chicago classified the mouth infections into two classes, namely, (*a*) pyorrhea and (*b*) alveolar abscess. He said that pyorrhea is probably due to mechanical and chemical irritants and that the amebas play no very important role in pyorrhea, except possibly in symbiosis. The latter statement harmonizes with that of Bass of Tulane University, New Orleans, who, in discussing the subject at the Meeting of the American Therapeutic Society, in San Francisco, in 1915, stated that the Ameba buccalis which is found in a large proportion of cases of pyorrhea alveolaris, while not the direct cause of the affection, contributes indirectly by burrowing into the tissues and carrying with it bacteria, upon which it feeds, and the bacteria thus obtain a foothold and grow as parasites in the mouth tissues.

Dr. Frank Billings of Chicago read an interesting paper on "The Principles Involved in Focal Infections as Related to Systemic Disease." Dr. Ernest E. Irons of the same city contributed a paper along the same lines, calling attention to the close relation of foci of infection in the alveolar processes, tonsils, sinuses, etc., to diseases of the joints, eyes and other organs of the body, and insisted on the necessity of coöperation between the dentist and physician in combating such conditions.

The subject of mouth infection, especially in relation to the part played by the amebas in this connection, is particularly interesting to pharmacists on account of the large demand for emetine hydrochloride as an amebicide in the treatment of pyorrhea alveolaris. Emetine is doubtless of value as an ingredient in tooth washes to destroy amebas in the mouth and prevent them from burrowing into the tissues. Its use is advocated by Bass and Johns of Tulane University and Barrett and Smith of the University of Pennsylvania. Their writings have created an enormous demand for ipecac and its alkaloids. This demand is probably out of proportion to the value of ipecac as a remedy for pyorrhea. Yet, at the same time, the evidence in favor of it is sufficient to justify us in using ipecac in dentifrices as a preventive of amebic infection.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The American Association for the Advancement of Science and about forty national scientific societies affiliated with it will meet in New York City from December 26 to 30, 1916, under the auspices of Columbia University, New York University, the College of the City of New York, The American Museum of Natural History and the other scientific and educational institutions of the city. Dr. Charles R. Van Hise, president of the University of Wisconsin, will preside. The address of the retiring president will be given by Dr. William Wallace Campbell, director of the Lick Observatory. The executive committee consists of Henry F. Osborn, chairman; J. J. Stevenson, M. I. Pupin, Charles Baskerville, N. L. Britton, Simon Flexner, E. B. Wilson and J. McKeen Cattell, secretary.

POSSIBILITY OF REORGANIZING THE NEW ORLEANS BRANCH, A. PH. A.

A movement is on foot to re-establish a New Orleans Branch of the American Pharmaceutical Association. Quite a number of pharmacists in New Orleans and elsewhere in Louisiana have signified their intention of joining the American Pharmaceutical Association.

Among the Louisiana members are the following: Henry Welsh, J. A. Legendre, F. C. Godbold, Honorary President, Max Samson, Dr. P. Asher, Dr. A. L. Metz, Christian Schertz, Lucien Lyons, A. O. Kaczoroski, Dr. A. D. Mouledous, Peter Rupp, Henry Gahn, J. P. Walker, Edward H. Walsdorf, Dr. J. O. Weilbacher, Adam Wirth, Edward Wunderlich, Sister Mary Bernard Welch, H. R. Xiques, Jos. T. Baltar, Robert F. Grace, J. E. Guess, Kentwood, La.; F. G. Rieger, Donaldsonville; J. G. Wafer, Homer; L. E. Carruth, Kentwood; J. W. Callens, Monroe; J. R. Taylor, New Iberia; W. G. Hudson and J. W. Peyton of Shreveport.

MINNESOTA PHARMACISTS FOR PREREQUISITE.

A referendum vote, taken in Minnesota among druggists of the state, shows that 77 percent of the nearly 1100 votes returned are favorable to a prerequisite law. There are 1540 registered pharmacists in Minnesota, so the vote taken indicates a preference, and also exhibits an interest, for it is indeed a very difficult matter to secure such a percentage of replies to any subject, no matter how deeply the recipients of communications may be interested. The State University has maintained a neutral attitude, preferring that the result of the vote be expressive of the druggists' wishes with regard to this important proposed legislation.

BROOKLYN COLLEGE OF PHARMACY.

Dr. William C. Anderson, Dean of the Brooklyn College of Pharmacy, has reached the quarter century mark as teacher of pharmacy. In recognition of his services and as an expression of the esteem in which he is held a testimonial dinner will be tendered him Tuesday, November 21st, at the Elks Club, Brooklyn.

Dr. Anderson's activities in the American Pharmaceutical Association and in the interest of pharmacists and pharmacy are well known. He is chairman of the New York Pharmaceutical Conference, has filled the office of president of the National Association of Retail Druggists, the New York State Pharmaceutical Association and has had much to do with legislative matters in Albany and Washington. He has long served on the legislative committees of the National Association of Retail Druggists, the New York State Pharmaceutical Association and the Kings County Pharmaceutical Society.

FORDHAM UNIVERSITY COLLEGE OF PHARMACY.

The senior class of the College of Pharmacy, Fordham University, held its opening session on September 18th, the meeting being attended by practically all of the students enrolled for the ensuing year.

An opening address, delivered in the name of the president of Fordham University, by the Rev. Father Tivnan, Regent of the Medical School, was enthusiastically received. Delving deeply, among other things, into the honesty of the pharmacist to both the public and himself; the speaker gave each and every student an insight of what was expected of him. The second speaker, Dr. Jacob Diner, Dean of the School of Pharmacy, was equally well received. The well chosen words of welcome and advice will remain indelibly impressed upon our minds throughout our school year. Our dean is a man of sterling qualities and one who has endeared himself to the hearts of every man in the class. We wish him success.

October 4th was the day on which a meeting was called for the purpose of electing officers. Dr. Gustave Horstman, a friend to every man who has entered this school, occupied the chair as temporary chairman and aided in the settlement of questions arising regarding parliamentary law. As a result of the elections, T. C. Kaminski was elected president, E. S. Hurowitz, vice-president; J. Rudy, secretary; I. Goldberg, treasurer; A. Koch, sergeant-at-arms, and G. E. Fitzsimonds, class reporter. The president-elect was called upon for a speech which was ably given. Dr. Horstman, Professor of Chemistry, spoke, touching on matters which would aid the men in their school work as well as socially and the advice given was well received. During the meeting Professor Klingman and Mr. Breivogel were proposed for membership and unanimously accepted, they becoming honorary members of the class of '17.

The senior class now has about fifty members. A number of students from other colleges are to be found among us, which speaks well for Fordham.

Geo. E. Fitzsimonds,
Reporter.

COLLEGE OF JERSEY CITY.

A lecture on the changes in the United States Pharmacopœia was delivered by Dr. Otto Raubenheimer, Professor of Pharmacy in the Department of Pharmacy, College of Jersey City, on Wednesday evening, November 1, 1916, before the Alumni Association. The meeting was well attended by the alumni and their friends, including the prominent pharmacists of Jersey City and vicinity.

In his lecture, Prof. Raubenheimer made a comparison between the pharmaceutical preparations of the former and the present Pharmacopœia, citing the changes that have been made which are of great importance to physicians, pharmacists, as well as the public. The conclusion reached by the speaker was that the present, the ninth revision, Pharmacopœia was far superior to the former editions, and that in order to keep this work up-to-date the hearty coöperation of the medical and pharmaceutical professions is needed.

PHARMACY DEPARTMENT, UNIVERSITY OF MAINE.

The Department of Pharmacy of the University of Maine has entered upon its twenty-first academic year. The following changes in the faculty have been made: William A. Jarrett, heretofore associate professor, is now Professor of Pharmacy; John Douglas Glancy is Instructor in Pharmacy; Charles W. Easley, formerly associate professor, is now Professor of Chemistry with John Kimball, assistant, and Marshall Miller and Lester F. Weeks, Instructors in Chemistry.

Two, three and four year courses are offered, leading respectively to the degrees of Graduate in Pharmacy, Pharmaceutical Chemist and Bachelor of Science in Pharmacy. Three years of high school are required for entrance and in 1919 completion of high school course or equivalent will be demanded.

NATIONAL COLLEGE OF PHARMACY.

Morris A. Pozen, Phar.D., chemist for the District of Columbia, has been appointed to the chair of Chemistry and Physics in the National College of Pharmacy, and V. Alois Burgher, Phar.D., is now assistant to the Professor of Analytical Chemistry.

NEW YORK COLLEGE OF PHARMACY.

Upon the recommendation of the Dean and the Committee on Instruction, it has been decided that hereafter the Honor Roll of the graduating class be composed of all students who secure a general average of 85 percent or over at the final examinations and that a special gold seal, bearing the inscription "with honor," be affixed to the diplomas of those earning this distinction, in addition to the regular seal of the college.

The following gentlemen have recently been elected to membership in the College: Julius Belfort, Martin Goulko, Joseph Maisel, George Niemann, George Oberdorfer, William F. Parker, Vito A. Pittaro, Joseph C. Prote, Harrison E. Purdy, Otto Regnault, William Schaaf, H. A. Stebbins, Eugene J. Ward. To life membership: M. J. Averbeck, Rudolph Wirth.

At the October meeting of the Board of Trustees, the following students were declared to be Graduates in Pharmacy of this College: Miss Jennie Baum, Messrs. J. B. Amedeo, Anthony Bankert, Humbert De Santis, George H. Dowsey, Isidore Egerman, Valentine C. Geist, Simon Hanellin, Isidore Lattman, Irving J. Levinson, William M. Levitt, Isidore Levy, Irwin M. Maer, John S. Marsho, Robert Maselli, Edward A. May, Edward A. Pape, Joseph L. Pinck, Paul B. Rhodes, Joseph Smith, Philip Sobel, Carmine A. Sposta, Clement Tarallo, Rudolph Weiss.

At the October meeting of the College, held on Tuesday evening, the 17th, reports of the chairmen of the delegates to the various pharmaceutical conventions were presented.

The Auditing Committee, through its chairman, Mr. Adolph Henning, presented its report for the fiscal year ending July 1, 1916.

While the portrait of John Oehler was thrown upon the screen, Dr. George C. Diekman read a very beautiful and impressive testimonial to his memory, at the close of which the meeting rose out of respect and in loving memory of him who had passed away.

PHILADELPHIA COLLEGE OF PHARMACY.

Short addresses were made at the opening exercises of the Philadelphia College of Pharmacy by Ex-Governor Edwin S. Stuart of Pennsylvania; Provost Egar F. Smith of the University of Pennsylvania; President Howard B. French, of the College; and W. O. Easton, Executive Secretary of the Central Y. M. C. A.

Ex-Governor Stuart took for his address "Integrity" and "Character," as two essentials necessary for a young man to succeed in life. President French and Dr. Smith dwelt at length on the recent merger of the two schools of pharmacy which was effected through the University of Pennsylvania, and used the slogan "In unity there is strength," for their main thought. Dean Joseph P. Remington introduced the new faculty, and a response was heard from Prof. J. W. Sturmer, now associate dean of the College.

The Alumni Associations of the two colleges have formulated plans for a complete merger of the two associations at an early date. For this purpose committees have been appointed.

VALPARAISO UNIVERSITY, DEPARTMENT OF PHARMACY.

On October 2nd, Dr. W. W. Stockberger of the Bureau of Plant Industry, Department of Agriculture, addressed the pharmacy students at Valparaiso.

The lecture was illustrated with a number of excellent slides showing the various phases of drug plant culture. Views were shown of impractical as well as practical drug farming; also pictures of drug culture as carried on by large pharmaceutical houses, together with others of a variety of college drug gardens. The illustrations were accompanied by a most interesting lecture regarding the different phases of this timely subject.

The members of the Valparaiso Pharmaceutical Association were particularly interested in this practical lecture, as it can be directly applied in increasing the efficiency of our own drug garden, which they were instrumental in helping establish, in connection with the Pharmacy Department. The advice, suggestions, and instructions given by Dr. Stockberger were heartily appreciated, and next year's gardening here will show that the seed was not sown on barren soil.

CHANGES OF ADDRESS

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the JOURNAL unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

HENRY MILTON,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESS SINCE SEPTEMBER 18, 1916.

WINN, H. A.,
From 416 W. 11th St., Grand Island, Neb.
To 97 St. Stephens St., Suite 40, Boston, Mass.

LIEBMANN, E.,
From Residence unknown.
To 258 Avenue A. Cor. 16th St., New York, N. Y.

JENSEN, C. A.,
From Residence unknown.
To Montana and Porphyry Sts., Butte, Mont.

MEYER, T. F.,
From Cor. Fourth and Clark Ave., St. Louis, Mo.
To 4930 Lindell Blvd., St. Louis, Mo.

KRIEG, A. A.,
From 1217 Quarrier St., Charleston, W. Va.
To 919 Quarrier St., Charleston, W. Va.

BOEDDIKER, OTTO,
From 954 — 6th Ave., New York, N. Y.
To 262 High St., Passaic, N. J.

POWELL, B. O.,
From Bell Hosp., Rosedale, Kansas.
To Columbus, Kansas.

Rogoff, J. M.,
From Residence unknown.
To North Western Medical College, Cleveland, Ohio.

Carey, H. B.,
From Residence unknown.
To 1294 — 9th Ave., San Francisco, Cal.

DECEASED SINCE SEPTEMBER 18, 1916.

Otto, Theo. G. E.,
Columbus, Ind.

Bartells, Geo. C.,
Camp Point, Ill.

RESIGNED SINCE SEPTEMBER 18, 1916.

Foster, I. A.,
Chicago, Ill.

Wiley, A. L. (Mrs.),
Hartville, Ohio.

Fansler, B. W. (Miss),
Marion, Ind.

UNITED STATES PUBLIC HEALTH SERVICE

List of Changes of Duties and Stations of Commissioned and Other Officers of the United States Public Health Service, for the seven days ended October 18, 1916.

Pharmacist D. J. Gleason. Relieved at Marine Hospital, Stapleton, N. Y. Proceed to Marine Hospital, Evansville, Ind. Oct. 18, 1916.

Pharmacist T. C. Armstrong. Relieved at Marine Hospital, Boston, Mass. Proceed to Marine Hospital, Stapleton, N. Y. Oct. 18, 1916.

Assistant Epidemiologist F. E. Harrington, Acting Assistant Epidemiologist C. C. Applewhite, Field Investigators W. K. Sharp, J. D. Applewhite. October 11, 1916.

Pharmacist Carl Stier. Relieved at Boston Quarantine Station. Proceed to Marine Hospital, Baltimore. Md. October 4, 1916.

Pharmacist C. H. Bierman. Directed to appear before Board of Medical Officers convened at Marine Hospital, Portland, Me., for examination for promotion. October 6, 1916.

Pharmacist J. M. Bell. Directed to appear before Board of Medical Officers convened at Marine Hospital, Savannah, Ga., for examination for promotion. October 6, 1916.

Pharmacist G. K. Hepler. Relieved at Marine Hospital, Baltimore, Md. Proceed to Washington, D. C., for duty at the Bureau. October 4, 1916.

Pharmacist R. D. Kinsey. Relieved at Bureau, Washington, D. C. Proceed to New York for duty in investigation of poliomyelitis. October 4, 1916.

Pharmacist J. H. Hayes. Relieved at New York. Proceed to Boston, Mass., Quarantine Station for duty. October 4, 1916.

Sanitary Chemist A. F. Stevenson. Attend meeting of International Association of Dairy and Milk Inspectors at Springfield, Mass., October 17–19, 1916. October 7, 1916.

BOARDS CONVENED.

Board of medical officers convened for the examination of pharmacists for promotion as follows:

Marine Hospital, Portland, Me., Detail for the board:

Senior Surg. P. C. Kalloch, chairman.

Surg. H. S. Mathewson, recorder. October 6, 1916.

Marine Hospital, Savannah, Ga., Detail for the board:

Acting Asst. Surg. A. B. Cleborne, chairman.

Acting Asst. Surg. L. W. Shaw, recorder. October 6, 1916.

(*Official*) Rupert Blue,
Surgeon-General.

WAR DEPARTMENT

List of changes of station during October, 1916, in the cases of Sergeants First Class, and Sergeants, Medical Department.

SERGEANTS FIRST CLASS.

Quentin J. Barker, from Ft. Constitution, to the Southern Department.

Isaac J. Hopkins, from Plattsburg Barracks, to the Southern Department.

George C. Douglass, from Ft. Barry, to Ft. Niagara.

Earle F. Greene, from Plattsburg Barracks, to Ft. D. A. Russell.

Paul Compton, from the Southern Department, to Plattsburg Barracks.

SERGEANTS.

Murat A. McGehee, from Ft. Monroe, to the Southern Department.

Ellis L. Jackson, from West Point, to the Southern Department.

Samuel K. Leming, from the Letterman General Hospital, to the Aviation School, San Diego, Cal.

James E. Reagan, from Ft. Michie, to Ft. Moultrie.

Phillip O. Mastin, from Ft. Greble, to the Walter Reed General Hospital.

Vernon Spickelmire, from the Walter Reed General Hospital, to Ft. Greble.

Thomas Van Denbosch, from Columbus Barracks, to Ft. Leavenworth.

Davidson M. Fleming, from Ft. Ethan Allen, to Ft. Logan H. Roots.

James M. Graham, from Ft. Ethan Allen, to Fort Warren.

Arthur Winter, from Ft. Niagara, to Ft. Totten.

George I. Harding, from Ft. Caswell, to Ft. Barrancas.

BOOK NOTICES AND REVIEWS

Manual of Chemistry. A Guide to Lectures and Laboratory Work for Beginners in Chemistry. A Text-book specially adapted for students of medicine, pharmacy and dentistry. By W. Simon, Ph.D., M.D., and Daniel Base, Ph.D. Eleventh Edition. Thoroughly revised, with 55 illustrations and 7 colored plates. Published by Lea & Febiger, Philadelphia and New York, 1916. Cloth bound, 648 pages. Price, $3.50.

Any text-book in the field of chemistry, where text-books are found by the hundreds, which reaches the eleventh edition, needs no reviewer to make its value known to teachers or students of pharmacy, medicine and chemistry. In the edition just issued, the revision has not been merely nominal and prefunctory, as is so often the case with text-books, but it shows evidence of reconstruction and change throughout. Much of the new matter has been made necessary by the changes in the U. S. P., but some other radical changes have been made which must be considered in the light of improvements from the student's standpoint.

One of these consists in omitting the chapters on Light and Electricity, which have less relevancy to chemistry than does the subject of heat, the chapter on which is retained. Some minor changes have been made in grouping subjects for purposes of study.

Although the book has been brought into harmony with the U. S. P. IX in most respects, the form "Cc." is retained instead of adopting the term "mil," and in the preface it is stated that this is done to avoid confusion, not a very convincing reason, seeing that all U. S. Government publications now use the latter term.

It is strange and rather to be regretted that in the excellent and concise treatment of the fundamental properties of matter, nothing is said about adsorption and some of the more recently observed facts in connection with the same, although the phenomenon itself is described briefly under the title "Surface Attraction."

It is disappointing, too, to see little or no mention made of colloids, other than the bare definition on page 36 and a brief reference under colloidal silver on page 307.

Under Aqua Destillata, no mention whatever is made of the modern water stills which provide a continuous flow of distilled water without rejecting the first and last 10 percent, as was formerly necessary.

The sections on Solution, Atomic Theory, Valence and Electrolytic Dissociation are excellent in their lucidity and conciseness.

The plan of illustrating chemical reactions by the use of colored plates showing the colors of the more important solutions and precipitates of the compounds of the metals, is one which is very helpful to the student and its continuance in the present edition will be appreciated.

The section on Analytical Chemistry is necessarily somewhat brief, as less than 70 pages are devoted to it, but it is so well arranged and so systematically handled that there is much to commend in it even in comparison with larger books on the subject.

The last 200 pages of the book are taken up with a consideration of the subject of the chemistry of the carbon compounds, commonly called organic chemistry. This important subject is handled in a thoroughly satisfactory manner and rounds out the completeness of the book admirably. One of the commendable features of the brief appendix to the book is the article on Optical Phenomena and descriptions of the spectroscope and polariscope.

The book is one which will undoubtedly meet with the success which has attended past editions and deserves to be in the library of every student of chemistry and teacher in colleges of pharmacy, medicine and dentistry.

Charles H. LaWall.

Lessons in Pharmaceutical Latin and Prescription Writing and Interpretation. By Hugh C. Muldoon, Instructor in Organic and Analytical Chemistry and Latin, Massachusetts College of Pharmacy, Boston, Mass. Published by John Wiley & Sons, Inc., New York. Octavo; 173 pages; price, $1.25.

The Pharmaceutical Syllabus allots only twenty-five hours to the study of "Latin pertaining to the science and art of pharmacy" and frankly states that: "In a Latin course of but twenty-five hours, it is evident that all ordinary methods of treating the subject must be set aside." It follows, therefore, that text-books on the subject of Pharmaceutical Latin must to a large extent set aside ordinary methods of teaching languages and merely endeavor to impress upon the student such essentials as will enable him to interpret and understand the construction of official Latin titles, prescriptions, and common terms used in connection with the practice of pharmacy.

The little volume under discussion seems to meet these requirements. The author says in his preface that neither drug store experience nor previous knowledge of Latin on the part of the student is assumed. Exceptions to general rules are omitted. But four cases of the noun and adjective are noted with stress upon the genitive. The third declension is simplified as much as possible and the discussion of the verb is reduced to a minimum. The greater portion of the exercise work is devoted to translation from Latin to English. Prescription writing and interpretation is well covered and there are some paragraphs devoted to a discussion of the Harrison law as it pertains to prescription writing, and other technicalities involved in filling, labeling and dispensing prescriptions.

One criticism that could be made of the book is the author's attitude toward the question of pronunciation. He says: "It is much more practical for a pharmacist to be able to interpret a prescription correctly, than it is for him to be able to pronounce in faultless manner the Latin contained therein." However true this statement may be, it is absolutely essential that the student have some guide in pronunciation while he is studying Latin words and case endings. Certainly a teacher must use either the English or Roman pronunciation in teaching the subject and it cannot be expected that the student remember the pronunciation of every word as spoken by the teacher. If he is to use the text-book at all in studying, it is only fair that diacritical marks be employed at least in the early exercises to guide him in pronouncing as he studies. It does not matter so much whether Roman or English pronunciation is followed, although the latter is by far preferable and is advocated by the Syllabus, but it is a mistake not to declare in favor of either one and then stick to it. The American Conference of Pharmaceutical Faculties should declare in favor of one or the other method of pronunciation and settle this question for all time.

R. P. Fischelis.

A Treatise on Pharmacy. For Students and Pharmacists. By Charles Caspari, Jr., Ph.G., Professor of Pharmacy in the Department of Pharmacy of the University of Maryland (Maryland College of Pharmacy, 1884–1904). Fifth edition, enlarged and revised. Octavo, 929 pages, illustrated with 337 engravings. Cloth, $4.75 net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

A review of this well-known work on pharmacy will appear in the December number of the Journal.

Histology of Medicinal Plants. By William Mansfield, A.M., Phar.D., Professor of Histology and Pharmacognosy of the College of Pharmacy of the City of New York, Columbia University. John Wiley & Sons, Inc., 432 Fourth Ave., New York City, publishers.

JOURNAL ANNOUNCEMENTS.

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Contributions: The JOURNAL accepts no responsibility for the opinion of its contributors. Contributions should be sent to the Editor; use only one side of the sheet for writing, and double-space the lines. Articles are accepted for publication on condition that they are contributed solely to this JOURNAL; and "all papers presented to the Association and its Branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by consent of the Committee on Publication." (By-Laws, Chapter X, Article 11.)

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Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the JOURNAL. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

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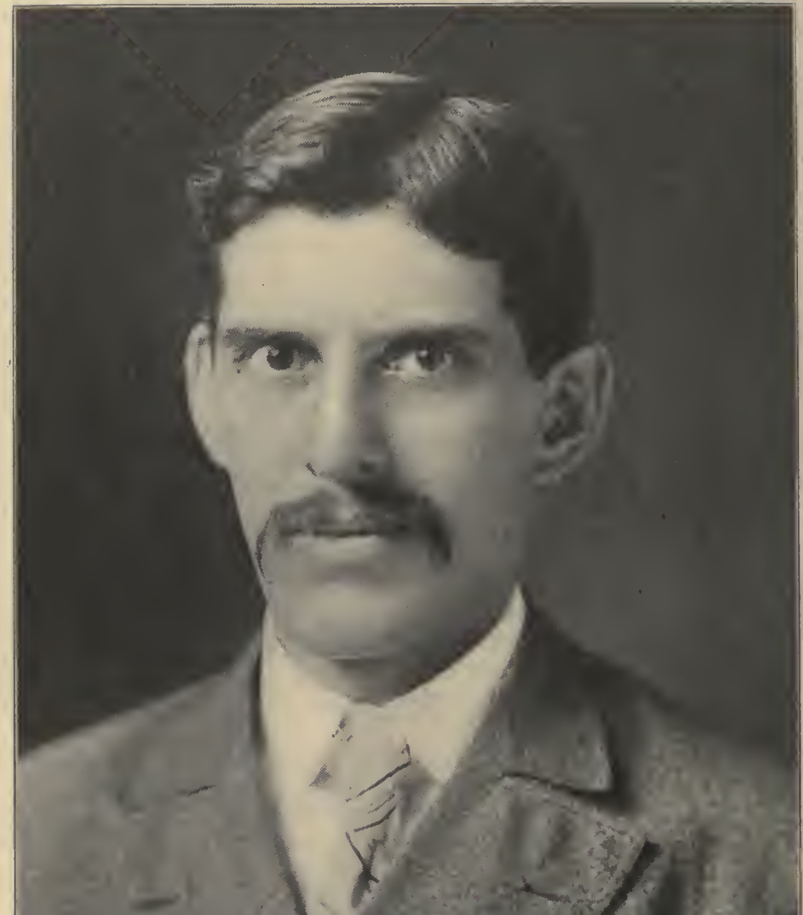
MARTIN INVENTIUS WILBERT, PH.M.

Born June 1, 1865   Died November 25, 1916



MARTIN I. WILBERT

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. V DECEMBER, 1916 NO. 12

MARTIN INVENTIUS WILBERT.

Pharmacy has suddenly lost one of its most talented workers in the death of Martin I. Wilbert. The blow, while not unexpected, came like a flash of lightning. A moment before his death at the German Hospital, Philadelphia, he was chatting pleasantly and hopefully, then his head sought his pillow, and with one expiring breath his soul fled.

His one purpose in life was service to his fellows and loyalty to his friends.

Martin I. Wilbert was born July 1, 1865, in the town of Lewis, Lewis County, New York. At the age of four years and two months his education began in a nearby country school; later on he attended a private school in Utica, New York, paying particular attention to the study of German, and then he became a student in Archambault's Academy in the city of Montreal. He returned to Utica and entered the drug business and he soon realized that he needed pharmaceutical education; he then matriculated in the Philadelphia College of Pharmacy and was graduated as an honor student in 1890. In the year following he was made apothecary in the German Hospital at Twenty-first and Girard Avenue, Philadelphia. His first duty as he saw it was to improve the service of the apothecary in this institution, and the following years were marked by activity, the managers gave him a chance not only to develop the service, but encouraged him in the wider field of experimental research in improving preparations. The pharmaceutical journals gained an enthusiastic worker in a field which was certainly not crowded with aspirants. He was not satisfied with the honor of the degree of Graduate in Pharmacy, but continued his work and was the first graduate of the College to receive a degree *in course*. He presented a paper on "Aloes" which gained for him the degree of Master in Pharmacy on April 7, 1903.

His duties at the German Hospital permitted him to do a large amount of investigation in pharmaceutical technique, and he was one of the first to study *radio-activity* in which he became an expert. His abilities were soon recognized by the United States Government, and on October 1, 1908, he left the German Hospital to accept a position in the Hygienic Laboratory of the Public Health

Service as assistant pharmacologist, and he became one of the editors of the Digest of Comments on the United States Pharmacopœia. Notwithstanding his removal to the city of Washington, he retained in a remarkable degree his affection for the German Hospital, and the associations and friendships there, which was virtually his home in Philadelphia, were continued to the end of his life.

In the American Pharmaceutical Association whenever work and research were needed, the cry went up from all sides, "Let Wilbert do it!" He often refused a position of chairman or president, but accepted that of secretary because he wanted to work. The question of compensation rarely entered into his calculations. It was always, "Where can I be most useful?"

It is quite probable that he realized that he would be taken suddenly from this world, because he suffered all his life from a weak heart, due to the sequelæ of a severe attack of scarlet fever in the early years of his childhood. He realized the force of "Work for the night is coming, when man's work is done."

The American Medical Association, recognizing Mr. Wilbert's ability, elected him a member of the Council on Pharmacy and Chemistry in 1905, and he became Secretary of its Section on Pharmacology and Therapeutics in 1911. The Editor of the *Journal of the American Medical Association* in a recent editorial thus speaks of Mr. Wilbert's work: "Few know the sacrifices of time and efforts Mr. Wilbert made in connection with the Council work. His very life seemed to be wrapped up in bringing about better conditions both in pharmacy and in medicine. He was one of the few men who serve as connecting links between the two professions, and the full measure of his influence at Washington in behalf of the public health will never be fully known."

In 1900 he was elected to the Committee of Revision of the United States Pharmacopœia, and he immediately proceeded to work for the betterment of this National Authority. His knowledge of pharmaceutical technique and his researches in other departments of activity began to produce results, and this with his work on the National Formulary constitutes a most valuable contribution to the uplift of both professions. Members of both Committees were immediately impressed with whatever he wrote and his views always had great weight.

Wilbert never accepted a position for the mere honor of the office itself. *He wanted to work* and cared little for exalted positions without service. He was always loyal to his Alma Mater. In the various College functions he was generally present and he was a most valuable member of its Alumni Association. In the Pennsylvania Pharmaceutical Association he was a power. Everyone knew Wilbert and his contributions in all departments of pharmaceutical activity will be sadly missed. The same is true of his work in the American Pharmaceutical Association. He was aggressive and fearless in condemning what he believed to be wrong and he was a living exponent of righteousness and integrity. No one ever attempted to bribe Martin I. Wilbert. He was never what is commonly called a "kicker." The keynote of his character was optimism. Always opposed to meanness and chicanery, he never stooped to petty methods and a mere desire for personal revenge. While realizing his own shortcomings, he was more interested in fighting the sin than the sinner.

The records of the American Chemical Society, the American Röntgen Ray Society, the American Electro-Chemical Society, and the Franklin Institute of Philadelphia show that he took an active interest in their proceedings. He delighted to be present at their meetings, and although entertainments and excursions formed a part of their programmes, he never would neglect the business part of the organization to go off on an excursion; but when he did go, he entered into recreations with high spirits and enjoyed the occasions with the rest, and he appreciated the kindly interest of his friends.

Martin I. Wilbert married Elizabeth Watkins, October 31, 1888, who survives him, and their home in Washington was an example of comfort and happiness. Both of Mr. Wilbert's parents still reside in Utica, New York, and they with five sisters are left to deplore their irreparable loss.

When defeated at some project Wilbert never became sour or bitter in his defeat but gathered up the crumbs of comfort and pressed on with more vigor than ever and made the best that he could of failure. The record of his achievements constitutes a bright page in the history of American pharmacy.

JOSEPH P. REMINGTON.

AN APPRECIATION OF G. W. McCOY, M.D., DIRECTOR HYGIENIC LABORATORY.

Martin I. Wilbert never exploited himself, nor would he allow others to do so. His aim was the good of the cause in which he labored and, this accomplished, he sought no credit for his own share therein. He frequently carried the burdens of others without showing his own hand. His originality and clear-headed foresight in outlining problems and suggesting methods and means for their solution did credit to his middle name, Inventius; and he was never too busy to "help out."

Dr. Wilbert's work at the Hygienic Laboratory covered a period of about eight years. During this time he was engaged in the work of the Digest of Comments on the Pharmacopœia and allied subjects, and made numerous contributions to medical and pharmaceutic literature. In this and, in fact, in all that he undertook, he worked harder than any man should work, and within a month before his death he had been admonished to take things a trifle easier; but he could not "let up." He had to work at full pressure in spite of a bodily handicap that would have immobilized the average man.

His loss will be severely felt at the Hygienic Laboratory, and the individual members of the staff have lost a dear and valued friend and counselor.—From a letter to the Editor of the *Journal A.M.A.*

EDITORIAL

E. G. EBERLE, Editor 253 Bourse Bldg., PHILADELPHIA

THE SEASON'S EDITORIAL.

CHRISTMAS joy is widespread; selfishness, for the time, is obscured, if not absent. The happiness of the season is enhanced because everybody bethinks himself whether he can do something which will add to other people's happiness.

The same spirit within the Association would be productive of good, if the members freely dispensed their concerted efforts, activated by the desire of helpfulness in upbuilding the Association, efficiently and numerically.

Christmas spirit means being helpful and implies a sacrifice. The devotion of time, encouragement, thought and loyalty, in the most liberal sense, transcends the generosity that contemplates the happiness of those upon whom the favors are bestowed. Accepting of this comparison, we admit that the spirit of disinterestedness is shown when we assiduously consider the welfare of the Association, when we evidence our attachment by fulfilling the responsibilities of membership. "A product never excels the capacity of the machine." So the members of an association characterize the organization.

The means of coadjuvancy in the Association are known to every member in it, and now more than ever before, when the high cost of producing the JOURNAL and *Year Book* is becoming burdensome, every one of us should resolve to combine his ability with a tenacity of purpose to be helpful. The success achieved by some during last year should be sufficient proof that pharmacists can be persuaded to join the Association. Would that many could realize membership in the Association as a duty they owe to pharmacy and become filled with such firm belief or faith that the contagion would spread. A speaker recently defined a salesman as a man who causes others to believe as he believes, and then moves them to act on that belief. This is the secret of success in all things; it is applicable in securing new members.

Another way of aiding the Association, and one that is open to all members, is by persuading advertisers, for their own benefit, to use the JOURNAL as a means of publicity; every pharmacist can speak a word of commendation, for no advertising is sought that has not his confidence.

Kipling says:

> "It ain't the guns nor armament, nor the bands that they can play,
> But the close coöperation that makes them win the day.
> It ain't the individual, nor the army as a whole,
> But the everlasting team-work of every blooming soul."

The hopes of pharmacy are largely dependent on the American Pharmaceutical Association, and at this season of the year, when the old year is about to conclude its records and another is soon to be placed upon the reel of time, nearly everyone is in a reflective mood, and these are the reasons for bringing your thoughts to the Association while arranging ours for wording the Season's Greeting of the JOURNAL.

May the members see in the New Year a new opportunity to be used with an increasing and lasting enthusiasm; shaping their deeds so that there will be no ghost of neglected opportunity, but instead a vision of accomplishment; tempering their moods so that their noble impulses will prevail and suppress the haughty spirit that engenders discord. May their lives not become so commonplace as to be an eternal winter of commercialism, whose cold kills their ideals—a tragic concatenation, with each day but a return to yesterday's routine, a mere business, solely for making money.

May the Christmas be a merry one for all, joyful because of the possibility and opportunity for giving; may all share liberally in health, happiness and prosperity during the coming year.

E. G. E.

INTEGRITY AND COÖPERATION ARE ESSENTIAL TO PERFECTION AND ENFORCEMENT OF NARCOTIC LAWS.

COÖPERATION is essential in the investigation of the narcotic evil, if it is to be productive of corrective measures. The consideration must be rational; the narcotic addicts are largely among the criminal classes; whether the addiction has brought them there does not enter into this argument; those who are not of the former are almost as unresponsive to persuasion and reason, and about as unreliable. Few of either class possess the determination or even desire to free themselves from the habit. Those who become addicted to alcohol are frequently the most ardent and sincere advocates of prohibition; not so with drug addicts.

The professional reformers and the press have not always observed the really serious part of the problem. Philanthropists while willing to contribute pecuniary aid for its solution overlook the very important fact that drug addicts are seldom cured, at least not in a short period of time. The press, while doubtless concerned in correcting conditions, has also taken advantage of the situation for increasing their circulation. In order to make more animated reading the actual status is frequently distorted or exaggerated, showing that at least one of the objects was to arouse curiosity, even though not the sole purpose of the writing. Some of the articles certainly are devoid of value and may contribute to drug addiction, especially in the case of the feeble-minded and curious. It is generally admitted that reports of the means employed by suicides lead others to take their lives in the same way. So the depicted effects of the narcotics doubtless, if only occasionally, persuade some one to experiment. Comparatively, these cases are few; the assertion is simply to express the opinion that such newspaper articles are not instrumental for lessening drug habituation. The reasons for addiction among the better classes are seldom correctly given.

Every trade and profession has its misfits, those that pursue its duties with a good purpose and others who are simply so engaged for making a living. Each period intensively promotes certain of the industries while neglecting others, and conforms its morals according to prevailing thought, even though there are derelicts. Spurgeon said: "He who boasts of being perfect is perfect in folly. I never saw a perfect man. Every rose has its thorns, and every day its night. Even the sun shows spots, and the skies are darkened with clouds. And faults of some kind nestle in every bosom."

The thought is applicable to a nation as well as individuals.

The State must provide hospitals for the diseased, who suffer perhaps through the fault of a preceding generation, or due to the conditions under which they are forced to live. But homes are also established for those who transgress the laws of the State. As drug habitués are diseased persons, who may contaminate the morals and ruin the life and health of others, it is no less the duty of the State to provide asylums for them.

No matter what the extent of habituation may be, it is deplorable; however, exaggerated statements will not help in remedying the evil. It is sufficient to know that it exists, and unsubstantiated charges are not conducive to coördinated endeavor for its correction, while doing injury and offending many whose interests are deeply concerned. Justice Cornelius F. Collins, of New York Court of Special Sessions, charged wholesale dealers with being responsible for the increase of illegal traffic in narcotic drugs; this statement he modified by saying, "he had no evidence and could prove no collusion on the part of any local wholesaler." The response of the wholesale druggists and manufacturers was prompt and included a request that evidence of guilt be produced, the names of the offenders, and that they be punished no matter who they may be, with the promise of earnest coöperation of the manufacturers and wholesale distributors of narcotic drugs. The drug trade generally has been active in anti-narcotic legislation.

At a recent meeting, largely of medical men, charges somewhat similar to the above were intimated. That is the unfortunate situation: pharmacists welcome the conviction of offenders but to be maligned is an injustice to them. There are violations, as is shown by the report of Commissioner Osborne on Violations of the Harrison Law, which follows in part:

"During the twelve months ended June 30, 1916, there was reported a total of 23,754 violations, which include those of technical nature and also provisions of the regulations issued under authority of the law. These violations involved 11,681 registered and 275 unregistered physicians; 4054 registered and 19 unregistered dentists; 1190 registered and 21 unregistered veterinarians; 91 registered and 6 unregistered manufacturers of drugs; 3 registered importers of drugs; 46

registered wholesale dealers; 4325 registered and 49 unregistered retail dealers; 446 by registered miscellaneous classes."

It must be remembered that many of these violations were technical, and of provisions of the regulations not always understood; many for non-payment of tax at the appointed time. Under the above violations only 83 registered persons were convicted.

There are undoubtedly some in the drug business who sell narcotics, or are in collusion with physicians, as shown by court records. The president of a large manufacturing house made the statement that "they would be glad to discontinue the manufacture of these products entirely if the medical profession could find a way to discontinue their use." This simply goes to show how annoying the situation has become, for everyone must admit that the narcotics are among the most necessary and valuable drugs of the materia medica. Records show that pharmacists are conscientious relative to their duties and responsibilities under anti-narcotic laws, and continued vituperation becomes offensive and should be resented.

This, however, is not a solution of the vexing problem. There must be coöperation between legal and legislative bodies, the public, physicians and pharmacists, in preparing effective legislation and its enforcement. The national law must be supplemented by state laws.

The Oil Paint and Drug Reporter in an editorial commented as follows:

"The drug trade as a whole would be willing to stand back of a narcotic measure drafted by former President J. H. Beal, of the American Pharmaceutical Association, as outlined by him in an address before the National Druggists' Association (printed in last month's issue of the JOURNAL A. PH. A.), but his avowed advocacy of the 'middle ground of moderation which shall protect the weak and reckless from exploitation, but shall avoid that paternalism which would deprive the average normal citizen of reasonable freedom of action' would be considered ample reason for determined opposition on the part of the doctrinaires and theorists, and by philanthropists whose generosity is usually financial and not in the exercise of open-minded judgment."

The necessity for perfecting narcotic legislation is emphasized by recent developments and it is hoped that a coöperative, serious effort will be made to codify existing statutes and enact a *rational* uniform law, applicable to all states, that will supplement the Harrison law, after being strengthened by the contemplated amendments.

E. G. E.

SCIENTIFIC SECTION, AMERICAN PHARMACEUTICAL ASSOCIATION

DIAGNOSTIC REAGENTS AND THEIR USES IN THE DIAGNOSIS OF INFECTIOUS DISEASES.*

BY F. E. STEWART, PH.G., M.D., PHAR.D.†

ANAPHYLACTIC OR ALLERGIC REACTION.

We now come to a consideration of what are known as the anaphylactic or allergic reactions.

When a foreign protein is introduced into the animal body, the body of a guinea-pig for example, after a definite interval a specific hypersensitiveness of the animal to this protein will appear. After a definite interval a second injection of the same protein may produce violent symptoms of illness and possibly a fatal termination. The first injection of the protein produces no symptoms, but serves to " alter the power of reaction on the part of the body cells by rendering them unusually sensitive or susceptible to the same or to closely related foreign proteins."

This unusual or exaggerated susceptibility of the organism to foreign proteins is generally known as *anaphylaxis* (*ana,* against, and *phylax,* guard, or *phylaxis,* protection), a word introduced by Richet to describe a contrary condition to prophylaxis. However, as we now regard the phenomenon, this word is a misnomer, for as regarded at the present time, this condition of hypersusceptibility or supersensitiveness, is " a distinct benefit and advantage to the organism. In fact, protection against a large class of infections depends on an altered power of reaction, *i.e.,* hypersusceptibility or anaphylaxis " (Anderson).[1]

Von Pirquet proposed the term " allergy," from *ergia* and *allos,* meaning altered energy or altered reaction of the organism, as more appropriate to express this condition than the word " anaphylaxis."

The allergic condition is specific in nature, *i.e.,* while it may be brought about by the introduction of any foreign protein into the body, yet it does not follow that the body has become hypersensitive to any other protein.

Another important point in regard to the allergic condition is that the animal may be in a condition of hypersusceptibility and immunity at the same time. " The two conditions are closely interwoven; the latter is often dependent on the former." [2]

The anaphylactic or allergic diagnostic reactions are therefore due to the altered power of the body to react. " When this power of reaction is increased we say that the body is hypersensitive or in a state of anaphylaxis.

" The tuberculin and mallein reactions are well-known instances of anaphylaxis. These substances are not poisonous when introduced into a healthy individual, but the tuberculous individual is anaphylactic to tuberculin, and an individual suffering with glanders is in a state of hypersusceptibility to mallein.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916. Continued from p. 1201, October number.

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[1] Anaphylaxis, by J. F. Anderson and M. J. Rosenau, *Arch. Int. Medicine,* June 15, 1909.

[2] Anderson and Rosenau, *ibid.*

"A clinical instance of anaphylaxis is the hypersusceptibility of some individuals to pollen—hay fever. The best studied instance of experimental anaphylaxis is that produced in the guinea-pig by the injection of a foreign protein; for example, horse serum, egg white, milk, etc."[3]

Schick and von Pirquet studied a large number of infectious diseases, especially smallpox, measles, streptococcic infections, etc. They also studied the reactions to cowpox virus, tuberculin and mallein. They confirmed the observations that the re-injection of a foreign protein following a definite interval after the first injection may give rise to the train of symptoms to which the name "anaphylaxis" has been given; consequently, if an animal manifests this train of symptoms after the injection of the foreign protein, it follows that the animal must have received a previous dose of the same protein.

The diagnostic value of this discovery is apparent when it is considered that an infectious disease is caused by infection with the protein of the microorganism causing the disease; typhoid fever, for example, is caused by the growth and multiplication of the living typhoid bacilli in the body of the infected individual, and, as stated by Vaughan, this infecting microörganism is in fact a living protein, capable of producing anaphylactic phenomena when introduced into the animal body.

Kolmer[4] explains the rationale of these diagnostic reactions as follows:

"If a protein, such as tubercle protein (tuberculin), syphilis protein (luetin), glanders protein (mallein), etc., is concentrated and applied to the skin or mucous membrane in a local area, and if the corresponding antibody or "ferment" is present in the body-fluids, the protein will be digested or split and the liberated protein poison and endotoxin will diffuse into the local tissues and produce a local reaction, characterized chiefly by congestion and œdema. This local reaction, marked by paralysis of the vessel walls with dilatation, is due to the action of the protein poison on smooth muscle, and is analogous to the urticarial or other eruptions accompanying general serum anaphylaxis (serum disease). Since the antibody-protein reaction is highly specific, these tests possess considerable diagnostic value. . . . The same underlying principle governs all. It would appear that these reactions should be obtained in all infections where we can secure and cultivate the causative microparasite. Theoretically, this is true, although practically, the problem is greatly complicated, or indeed impossible, owing to technical difficulties and especially to the fact that the protein antibody for one strain of a particular microparasite may not be identical for all strains."

Tuberculin Reaction.—The tuberculin generally employed in the tuberculin tests is that form known as *Old Tuberculin* ("O.T."). It is called "old" to distinguish it from the later preparations suggested by Koch, to whose investigations we are indebted for this important product. It is prepared from pure cultures of the tubercle bacillus of five or six weeks' growth upon 5 percent glycerin bouillon. The culture medium containing the germs is evaporated to one-tenth of its volume and filtered through porcelain to remove the germs. Old Tuberculin contains the soluble products of the tubercle bacilli in a fifty percent glycerin solution.

Relatively large quantities of tuberculin may be injected into healthy persons without causing any symptoms of reaction; but if a very small quantity is injected into a person suffering from tuberculosis, very different symptoms are produced. The temperature rises from 1° to 2° F., this rise being accompanied by a feeling of illness amounting sometimes even to nausea and vomiting. Around each localized tuberculous lesion there is produced an area more or less marked with heat and redness. If the resulting congestion is very severe, there may be later a casting off of pieces of necrotic tissues. After the reaction above described has subsided, it is frequently found that a tendency to heal is manifested.

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[3] Anderson and Rosenau, *ibid.*

[4] John A. Kolmer, *A Practical Text-book of Infection, Immunity and Specific Therapy*, p. 582.

Tuberculin reaction is therefore characterized by three essential features: (1) a constitutional reaction consisting of fever and accompanying general symptoms of malaise; (2) a local reaction at the site of injection varying in intensity from slight tenderness and redness to severe inflammation with adenitis; (3) a focal reaction about the tuberculous lesion. These reactions do not necessarily run parallel.

According to the present theory, this reaction is explained in the following manner: the tubercle bacilli stimulate the body cells to produce digestive enzymes in the nature of an amboceptor which aids in splitting the tubercle protein contained in tuberculin, liberating the protein poison, which produces a general local and focal reaction.

The general reaction is believed to be due to a general effect of the poison on body cells. The local reaction is supposed to be caused by concentration of the poison at the site of administration of the tuberculin, and the focal reaction is presumably due to the fact that body cells about the lesions are more sensitive to the effects of the poison than are other cells, probably because they are most concerned in antibody production.

The tuberculin reactions are highly specific, if they are not of as much value in diagnosis as was at first supposed, owing to the fact that by far the greater proportion of supposedly well people react to the test because tuberculosis is an exceedingly common infection, from which a large majority of infected persons spontaneously recover.

False positive reactions may be observed in leprosy, a disease caused by a bacillus which bears close morphological and bacteriological resemblance to the tubercle bacillus. Massive doses of tuberculin injected subcutaneously may produce a toxic fever in debilitated, non-tubercular individuals. However, when a positive reaction occurs in a person supposed to be in health, it is safe to assume it is due either to a small hidden tuberculous lesion, or to a healed tuberculous lesion.

In the focal stage of tuberculosis, the patient may not react at all. This is to be explained by assuming that the tissues have become so thoroughly saturated with tuberculin produced by the infected area that they are incapable of responding to further artificial stimulation. In the first stages of infection no reaction may occur, because sufficient antibody has not been formed to produce reaction, and other cases given in the text-books explain false negative reaction which cannot here be considered for lack of space.

Subcutaneous Method.—Various methods have been proposed for making the tuberculin test. The following is the method of application used by Roth-Schulz,[5] who used tuberculin at the Beelitz Sanatorium from 1902 to 1905, in over 1000 cases. "The temperature and pulse-rate of the patient to be investigated are carefully noted for from four to seven days, after which, in the event of these being normal or only very slightly elevated, an initial hypodermic injection is given of 0.5 mg. Old Tuberculin.[6] If no reaction follows this in from three to four days, the same dose is usually repeated, particularly if any symptoms indicative of a mild reaction have occurred. If the temperature shows any irregularities, a longer period is allowed to elapse and the same repeated a third time. Usually, however, in the absence of reaction, the second dose is increased to 1.25 mg. This amount may be repeated after the lapse of two or three days without reaction, or the dose increased to 2.5 mg. This maximum dose may again be repeated. The importance of repeating the same dose is emphasized, as often a merely suggestive reaction after the first administration may be followed by severe symptoms after the second dose.

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[5] Francine's Pulmonary Tuberculosis, Second Ed., 1907; *Beitrage zur klin. der Tuberkulose,* 1906, No. 12.

"A rise in temperature of 1° F. (0.5° C.) above the previous maximum is considered positive, but great importance is attached to the development of general and local phenomena. Even in the event of only a slight rise in temperature, the development of râles where they were previously absent, or the occurrence of general symptoms, is considered positive."

Contra-indications for the Subcutaneous Use of Tuberculin.—Lerbource[7] gives as contra-indications for the use of tuberculin the following: "Recent hemorrhages, nephritis, and tuberculosis of the kidney. Ill-nourished individuals and convalescents from acute infections."

Numerous attempts have been made to ascribe some prognostic value to the tuberculin reaction. M. Petit considers the reaction to indicate a virulent tuberculosis. Moeller, Kyserling and Turban state that "a violent reaction indicates a recent infection, and vice versa."

The local reactions to tuberculin depend upon the fact that the cells of a tuberculous individual are highly sensitized to tuberculin and when in contact with an extremely minute amount are stimulated to an enormous production of antibodies. This is characterized by hyperemia and inflammatory changes at the point of application.

The Cutaneous Reaction.—Von Pirquet[8] pointed out the fact that upon scarifying the skin of a tuberculous subject and applying a solution of tuberculin, there appears an area varying from a local hyperemia to an intensely inflammatory reaction. Many times the reaction is characterized by the appearance of a small papule, the disappearance of which is followed by a brownish pigmentation. The reaction is not attended with fever, malaise or any other general symptoms.

The method of carrying out the von Pirquet reaction as outlined by Lawrason Brown[9] is as follows: "The cutaneous method consists in putting a drop of diluted Old Tuberculin, preferably 25 percent, upon the skin, and then with a lancet, quill or von Pirquet's scratcher (*Schaber*), a slight abrasion of the skin, under the drop of tuberculin, is made. Only the most superficial layers of the epithelium need be removed, as it is only necessary to open the superficial lymph channels, and it is unnecessary and even undesirable to draw blood. The technic to be employed is practically the same as that used in vaccination against smallpox, and the dangers of secondary infection are exceedingly slight. At a distance of about one inch a control[10] abrasion should be made under a drop of 50 percent glycerin and 0.1 percent phenol in physiological saline solution. Care should be exercised not to carry tuberculin on the instrument to the control, and where large numbers of patients are vaccinated, a platinum-iridium instrument that can be heated has been advised."

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[6] Equivalent to 10 min. of Serial Dilution No. 3.

[7] "Le Diag. de la Tuberculose." M. Villairt et L. Tixier. *Revue de la Tuberculose,* June, 1908, p. 239.

[8] *Weiner medicinische Wochenschrift,* 1907, Nos. 27 and 28.

[9] *Boston Medical and Surgical Journal,* July 23, 1908.

The value of the von Pirquet reaction is variously estimated. It is an extremely delicate reaction and on that account often reacts with individuals who appear to be practically free from tuberculosis. However, as pointed out by Hamberger,[11] it is quite difficult to find an adult free from tuberculosis, which explains the great frequency of von Pirquet's reaction in adults. Its greatest value is in the diagnosis of tuberculosis in children.

Jules Lemaire[12] distinguishes three grades of the von Pirquet reaction as follows:

"Feeble reaction: Hyperemic zone 4 to 6 mm. in diameter, in the centre of which is a papule; the skin slightly swollen and hard.

"Medium reaction: Hyperemic zone 6 to 12 mm. in diameter; numerous papules very prominent. The skin is quite œdematous throughout the area. The redness persists for several hours.

"Strong reaction: All of the foregoing conditions are very much exaggerated. The area of reaction gives a very resistant sensation to touch and the zone of hyperemia extends from 2 to 3 cm. If the sub-adjacent œdematous area is pronounced, it gives an appearance of urticaria. Occasionally at the points of scarification there is an exudate of serous fluid."

Ophthalmo-Reaction.—Wolff-Eisner,[13] and simultaneously, Calmette,[14] found that the instillation of a dilute solution of tuberculin into the eye of a tuberculous patient was followed in a few hours by a local reaction, characterized by a congestion of the palpebral conjunctiva and caruncle, with a more or less abundant serofibrinous exudate which tended to accumulate in the inferior cul-de-sac.

Calmette's modification of Wolff-Eisner's method consists in the use of a precipitated and purified tuberculin, as the glycerin present in Old Tuberculin is of itself an irritant. The ophthalmic test has but a limited field of use and is not employed to the same extent as formerly. It was dropped in human practice on account of langer to the eye, but is still employed more or less for diagnosis of tuberculosis in cattle.

The Moro Reaction.—The following diagnostic reaction as described by Moro,[15] its originator, has attracted considerable attention:

"A tuberculin ointment is prepared by a combination of equal parts of Old Tuberculin and anhydrous lanoline. The lanoline base is selected because with this material it is possible to prepare a very concentrated ointment. The mixture is made at a temperature of from 20° to 30° C.

"Ten grams of ointment is sufficient for 100 tests. The point of application is over the skin of the abdomen or over the breast near the mammæ. The ointment is energetically rubbed on the skin for one-half to one minute. The area of the part treated is about two inches. The positive effect is noted by the eruption of a granular or a papular efflorescence at the point of application."

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[10] The Mulford von Pirquet test outfit includes control tubes containing concentrated glycerin bouillon. This is superior to 50 percent glycerin for control, since it contains all the constituents of Old Tuberculin except the products of the tubercle bacilli.

[11] *Muenchener medicinische Wochenschrift*, 1908, No. 23.

[12] *Beitrage zur klin. der Tuberkulose*, Bd. ix, Heft 1.

[13] *Beitrage zur klin. der Tuberkulose*, Bd. ix, Heft 1.

[14] *C. R. Academy of Science*, cxliv, 1907.

[15] *Muenchener medicinische Wochenschrift*, Feb., 1908, No. 5.

Moro divides the reaction into three groups:

"*First.*—A weak reaction. At the point of application there appear, after twenty-four to forty-eight hours, seldom later, single distinctly red nodules, from two to ten in number, of a diameter of 1 to 2 mm. This efflorescence disappears after a few days and at no time has caused any itching or other irritation.

"*Second.*—The medium reaction. At the point of application there appear in the first twenty-four hours numerous (one hundred or more) miliary or larger red nodules, about 3 mm. in diameter. The skin surrounding the eruption is intensely red. The reaction is confined to the point of application, and is accompanied by considerable itching. This remains several days and then disappears.

"*Third.*—The strong reaction. At the point of application there appear within a few hours one hundred or more large nodules or papules, upon an inflammatory base. The dermatitis associated with it is accompanied by intense itching. Many of the eruptions form an exudate and often reach a size of from 1/8 to 1/4 inch in diameter.

"The reaction is not only confined to the point of application, but extends into the surrounding area. After a few days the papular efflorescence dries up, leaving a brownish pigmentation of the skin which remains for several weeks. General symptoms, namely, rise of temperature, etc., do not accompany the reaction.

"The strong reaction occurs seldom. In thirty-seven positive reactions, we only observed it three times, two of these cases being scrofulous and one caries of the bone. The weak reaction was observed twenty-five times, and the medium reaction nine times in the thirty-seven cases.

"The most distinct reaction is observed in scrofulous conditions and tuberculosis of the bones. Weaker reactions occur most often in cases of tuberculosis of the lungs.

"An important factor in determining the stage of the reaction is without doubt the sensibility of the skin."

Moro gives a table showing the value of the percutaneous reaction with the cutaneous vaccination of von Pirquet. In sixteen cases of undoubted tuberculosis twelve were positive with the percutaneous reaction and fourteen positive with von Pirquet's reaction. In twelve cases of scrofulous conditions, six reacted positive to the percutaneous reaction and six positive to the von Pirquet reaction. In twenty cases of probable tuberculosis, twelve reacted positive with the percutaneous and twelve reacted positive with the von Pirquet reaction. Of twenty-five cases of non-tubercular patients, three reacted positive with the von Pirquet. Of sixty-eight cases, twenty-one of children of suspected tuberculosis reacted and four children with manifest tuberculosis.

"The ointment reaction is strongly specific. All cases that gave a tuberculin ointment reaction also gave the cutaneous tuberculin reaction described by von Pirquet. A positive ointment reaction without a positive von Pirquet reaction I have at no time observed. The ointment reaction is absolutely harmless. The occurrence of itching at the point of application occurs only relatively seldom."

Dr. Med. Emil von Emmerich[16] gives a very interesting report concerning the value of the cutaneous and percutaneous (Moro) tuberculin reaction. He does not consider von Pirquet's reaction to be of value in adults. His conclusions are as follows: "By the Moro reaction fewer reactions result in clinically tuberculosis-free individuals than by the use of the von Pirquet reaction. Out of sixty cases clinically free from tuberculosis, forty-four reacted positive with the von Pirquet reaction, and only nineteen with the Moro reaction. The Moro reaction is much easier carried out than the cutaneous reaction and is absolutely harmless."

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[16] *Muenchener medicinische Wochenschrift*, 1908, p. 20.

Regarding the conjunctival and cutaneous tests, Dr. Edward R. Baldwin[17] states:

"1. The conjunctival tuberculin test performed with weak solutions by a single instillation has some value in confirming the presence of tuberculosis in the early stages.

"2. It has little value in confirmation when the symptoms of tuberculosis are only suspicions.

"3. Its value in distinguishing 'active latent' from healed tuberculosis in apparently healthy persons has not yet been determined.

"4. Repetition of the test in the same eye has no advantage over the cutaneous and subcutaneous tests in the percentage of reactions produced, and may be misleading and dangerous.

"5. Repetition in the other eye by the author's method offers so little advantage that it cannot be recommended.

"6. The conjunctival reaction is unreliable for prognosis.

"7. Used with the proper precautions, danger to the eye is slight, and need not preclude the test when other methods are inapplicable, as, for example, when fever is present. It should be restricted to adults, since the cutaneous test has been found equally valuable for children and is harmless.

"8. The subcutaneous test by the simultaneous use of dilute and strong tuberculin offers a method of detecting at once or excluding tuberculous infection with no danger of inconvenience. Further experience is needed to show the value of this method.

"9. The subcutaneous test should be restricted to those cases where a reaction at the site of disease is desired, or where the other tests result negatively."

The cutaneous test "as introduced by von Pirquet, is the most suitable method for general use, and is absolutely harmless. It is the only test required for children, because a positive result is more significant of a recent infection and occurs less often in apparent health under the age of twelve. Other methods may be needed in adults to confirm the results of a cutaneous test, but it can be applied as a preliminary method in all cases with advantage."[18]

Tuberculin Intradermal Test.—The following tests are used intradermically; that is, by injecting the material employed for testing *between* the layers of the skin, and *not* subcutaneously. The injections may be made by an ordinary hypodermic syringe provided with a small, very sharp needle, or by the so-called "Mulford Hypodermic Syringe." As the latter is a new instrument and may be employed for intradermic tests of various kinds herein described, the illustrations given apply equally to the intradermal tuberculin test, the luetin test for the diagnosis of syphilis, and the Schick test.

The object of applying the bacterial protein *between the layers of the skin* is to cause a local disturbance which can easily and accurately be observed. If the bacterial protein is injected under the skin, it is taken into the blood stream and distributed through the body, so that when split up by any specific ferments or antibodies that may be present, or that may be formed by tissue cells, the reaction in most cases is so slight as to be scarcely or not at all observable and of no diagnostic value. It is important, therefore, in carrying out the intradermic tests, that a small amount of material be injected *between* the layers of the skin, so that when it is attacked by antibodies formed by the cells, or already present, the toxic substance is liberated and causes a *local* inflammation. If the patient is not suffering from the infectious disease corresponding with the test material, or has not been immunized against such disease, no reaction will occur except that due to traumatism, which disappears within twenty-four hours.

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[17] "Conclusions from 1087 Conjunctival Tuberculin Tests by a Uniform Method," reprinted from the *Transactions of the Sixth International Congress on Tuberculosis,* Sept. 28–Oct. 5, 1908.

[18] "General Principles of Tuberculin Diagnosis and Treatment," reprinted from the *Journal of the American Medical Association,* January 22, 1910.

The suggestion that tuberculin be used intradermally for diagnostic purposes was first made by Mendel[19] (1908), who believed that infiltration of the skin with tuberculin would be a delicate and satisfactory means of determining tuberculin hypersensitiveness. This method has been developed and extensively used in man by Mantoux.[20] Mantoux employs 1 to 10,000 dilution of tuberculin, the amount injected containing 0.005 mg. of Old Tuberculin.

The intradermic tuberculin test is a very delicate one, and good results can be obtained only by exercising great caution in the care of syringes, etc.

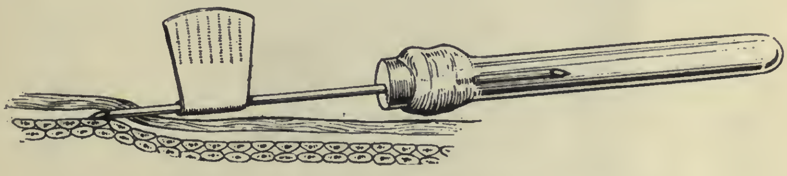

FIG. 1.—Showing method of inserting needle between layers of skin.

The positive reaction consists of infiltration and hyperemia about the site of injection, resembling that following the von Pirquet cutaneous test. It appears in six to eight hours, reaches a maximum in twenty-four to twenty-eight hours, and usually disappears in six to ten days.

Mantoux and Lemaire[21] report the results of intradermic tests in 300 apparently healthy children. Among children from a tubercular environment in the first year of life, 16 percent reacted; in the second and third, 51 percent; from the fourth to the sixth, 65 percent; from the seventh to the fourteenth, 84 percent. Among children not so intimately exposed to the disease in the first year of life, 11 percent reacted; in the second and third year, 12 percent; from the fourth to the sixth year, 45 percent; from the seventh to the fifteenth, 66 percent. Although the number of cases is small, the figures indicate that the test is more delicate than the cutaneous test. Mantoux and Roux[22] performed the intradermic test and the cutaneous test simultaneously upon fifty-two children and found the former far more delicate than the latter.

The Luetin Reaction for the Diagnosis of Syphilis.—For this test an extract of the killed culture of the *Treponema pallidum* (*Spirochæta pallida*) is employed. This extract is called *Luetin.* The killing of the spirochetæ for this purpose is effected by heating to 60° C.; 0.5 percent trikresol is added as a preservative. The preparation is carefully tested to insure sterility, and is then placed in sterile ampuls or capillary syringes.

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[19] *Med. Klin.*, 1908, iv, 402.

[20] *Muench. Med. Woch.*, 1908, No. 40.

[21] *Semaine Med.*, 1909, xxix, 371.

[22] Mantoux and Roux: *Cit. Muenchen. Med. Wochenschr.*, 1908, iv.

This test is made by selecting a site on the skin of the arm, cleansing and sterilizing, and then injecting the luetin into the skin as superficially as possible. The injection should be made *between* the layers of the skin, and *not* under the skin. If properly done, a small, pale swelling is produced which subsides in from 10 to 15 minutes. The following phenomena indicate the various types of positive reactions.

(*a*) The *papular type* consists of a large raised papule, reddish in color and usually 7 to 10 mm. (¼ to ⅓ inch) in diameter, which makes its appearance in 24 to 48 hours. The papule may be surrounded by a diffused redness and show marked telangiectasis. The size of the papule and the induration may increase slowly during the following 4 to 5 days, after which it begins to recede and the color gradually becomes dark brownish-red. The induration gradually disappears within two weeks.

(*b*) The *pustular type* resembles the papular type until about the fourth or fifth day, when, instead of beginning to recede, the inflammatory process increases in intensity, the surface of the papule becomes œdematous, with the formation of multiple miliary vesicles and a central softening of the papule. Within the following 24 hours the papule is converted into a vesicle filled with serum, which later becomes purulent. The pustule soon ruptures and becomes covered with a crust that falls off within a few days, leaving a small induration which is converted into a cicatrix after healing.

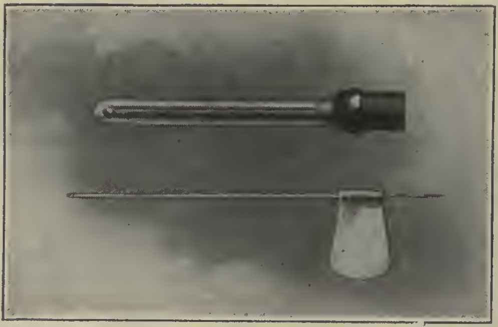

FIG. 2.—The Mulford intradermic syringe. The luetin is contained in the sealed capillary tube and thus protected from contamination. The needle is especially designed for intradermic injection. The longer end acts as a plunger when inserted through the rubber cap, expelling the luetin from the tube through the needle and between the layers of the skin.

(*c*) In the *torpid type* the site of injection fades to an almost invisible point within 3 to 4 days, so that it may erroneously be considered a negative reaction. After ten days, or even longer, the spot suddenly begins to enlarge and goes through the same stages as seen in the pustular type.

Noguchi[23] reports the results of the cutaneous reaction in 642 cases, comprising 315 syphilitics, 77 parasyphilitics and 250 controls.

In cases of primary and secondary syphilis which had had either insufficient treatment or no treatment at all, the reaction was negative except in a few instances in which the positive reaction was of the indurated papular type.

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[23] "Serum Diagnosis of Syphilis and Luetin Reaction," by Hideyo Noguchi, M.D., M.Sc., Associate Member of the Rockefeller Institute for Medical Research, pub. by J. B. Lippincott Company, Phila. (Third ed.), 1912.

Most of the syphilitics in the secondary stage who had been treated with mercury followed by salvarsan, and who remained without symptoms for some months thereafter, gave strong positive reactions. In cases of tertiary and late hereditary syphilis, there is usually an intense positive reaction. It is in these cases that the luetin test is one of the greatest value. By this means it is possible to diagnose the disease in its diverse and obscure manifestations—a feature of great importance when it is desired to ascertain whether or not internal lesions are syphilitic. In this stage of the disease the Wassermann reaction is frequently negative, especially when patients have received recent treatment.

In parasyphilitic cases the reactions were so variable that no definite decision could be made regarding their diagnostic value.

Dr. Noguchi and others have reported on numerous cases of tuberculosis, leprosy, pneumonia, typhoid fever and various diseases other than syphilis in which the test was applied, and in none of these did a positive reaction occur.

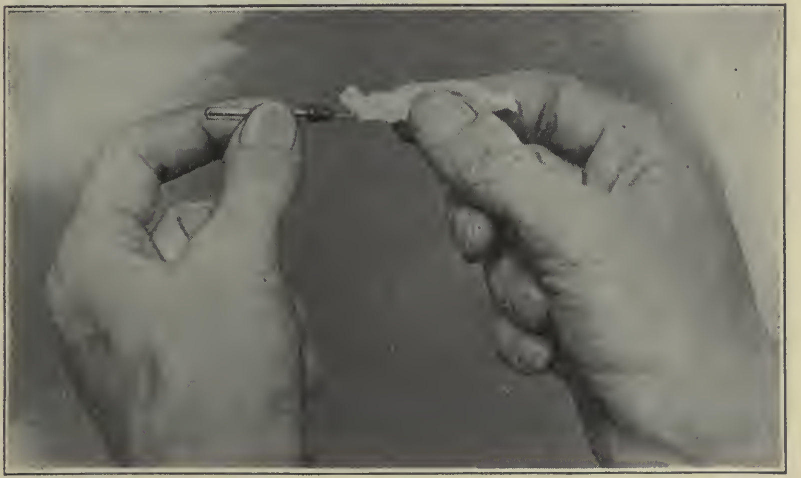

Fig. 3.—The needle is sterilized and protected by a sterile wrapping and envelope. The red end of the wrapper should be torn off without touching the part of the needle thus exposed. Place a drop of an antiseptic on the rubbe cap. The end of the needle exposed by removal of the portion of wrapper is then pushed through the rubber cap until the end of the needle inside the tube is visible just below the rubber cap. The remainder of the paper is then carefully removed without contaminating the needle.

Based upon observations by various investigators since Noguchi, the value of the luetin test may be summarized as follows:

The luetin reaction is specific for syphilis.

It occurs most constantly and intensely during the tertiary and latent stages.

It is usually absent or very mild in the primary or secondary stages, although in these stages it may become positive after energetic treatment.

In infants with congenital syphilis it is less marked than in adults with congenital syphilis.

If a patient who gives a positive luetin reaction is tested again after a month's interval, the reaction takes the same form. If the test is made at shorter intervals than a month, the reactions appear somewhat quicker, showing a shortening of the incubation period. When an injection of luetin is made within one week after the positive reaction, only a mild reaction takes place, occurring within 24 hours and quickly fading away.

According to Noguchi and others, the luetin reaction is little affected by the usual intermittent mercurial treatment, with the exception, as previously stated, that in primary and secondary syphilis, the reaction may become more positive under the mercurial or salvarsan treatment. Theoretically, the test should become negative only when all of the spirochetes of the body of the patient have been killed. In practice, however, the negative luetin reaction should never be relied upon as an evidence that the patient is cured.

Noguchi states: "The absence of the clinical and serological signs of syphilis

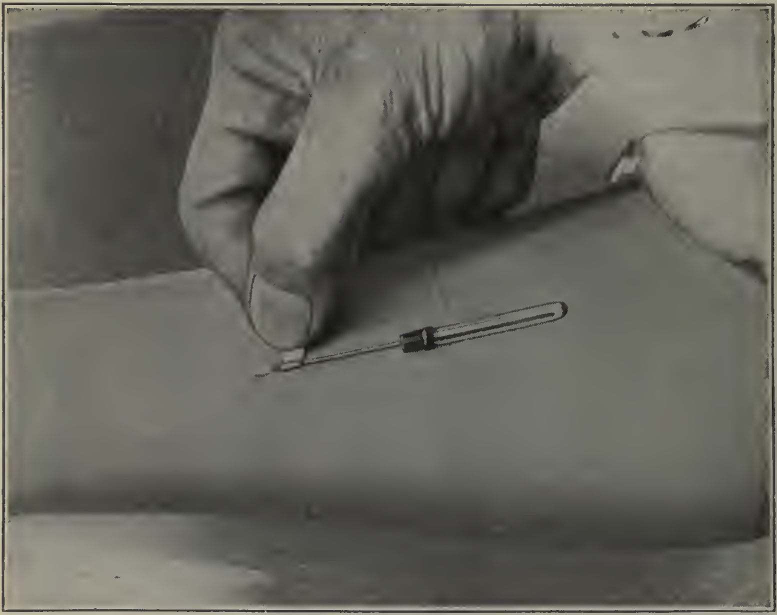

FIG. 4.—The skin at the site selected for making the test is sterilized Holding the needle by the finger rest, it is carefully inserted between the layers of the skin.

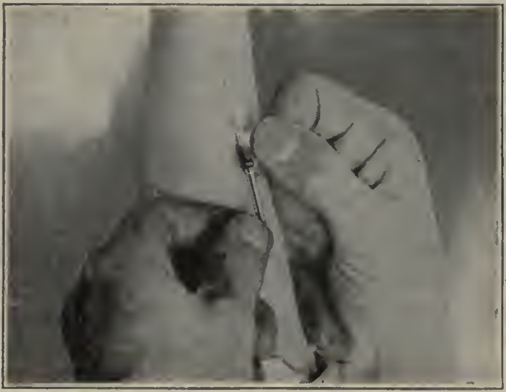

FIG. 5.—The capillary tube is pushed up on the needle and the luetin forced between the layers of the skin, forming a small swelling. Each syringe contains sufficient for one test. Caution should be exercised in making the injection to see that the material is really going between the layers of the skin and not under the skin. If no raising of the skin is visible after the tube has been pushed up part of the way on the needle, it is evidence that the needle has been inserted through the skin and it should be withdrawn and inserted more superficially. The needle should be held as nearly parallel with the skin as possible.

of a period of one year is certainly an encouraging aspect; but, considering the possibility of these signs being absent in some latent cases, one has a right to hesitate in pronouncing these cases cured. It is in this connection that the Luetin reaction may become a great aid in settling this important question. As already stated, the luetin reaction alone cannot decide the point, but combined with other means of diagnosis, it is bound to throw some light on this problem."

The Schick Test.—For Determining Susceptibility to Diphtheria and the Need of Prophylactic Injections of Antitoxin. The Schick test offers a simple and accurate method of separating persons likely to be attacked by diphtheria from non-susceptible individuals. A minute quantity of diphtheria toxin[24] is injected intradermally, and if antitoxin is absent or present in such small amounts as to be insufficient for protection of the individual, a positive reaction appears in twenty-four to forty-eight hours. It is evidenced by a circumscribed area of redness and infiltration from 1 to 2 cm. in diameter. This remains from seven to ten days, and on its disappearance leaves a superficial scaling and browning pigmentation. The amount of toxin advised by Schick is 1-50 of the minimum lethal dose for guinea-pigs. When this amount of toxin is injected intradermally, it is, according to Schick, necessary that at least 1–30 of a unit of antitoxin to each c.c. of blood be present in order to prevent the appearance of a reaction. Schick considers this amount of antitoxin in the blood sufficient to protect against diphtheria.

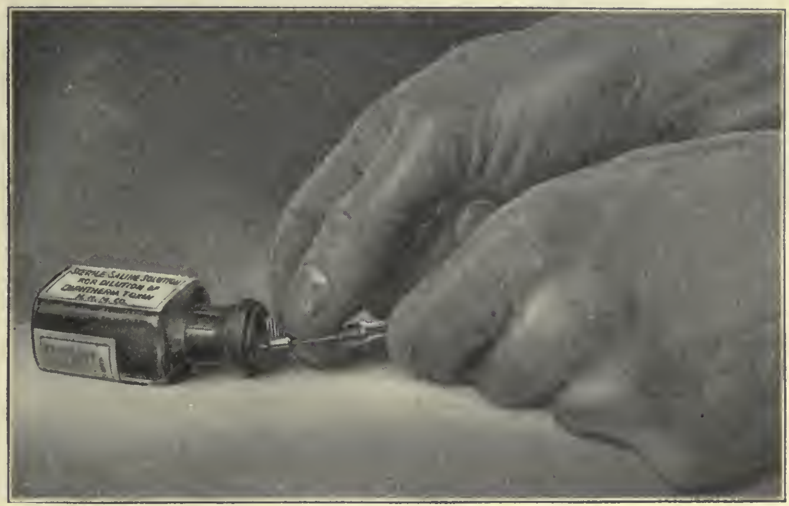

FIG. 6.—The needle is then thrust through the rubber cap on the 20 c.c. vial of sterile saline solution which serves as a diluting fluid and the tube pushed up on the needle, expelling the concentrated toxin from the tube into the salt solution. The tube is moved gently up and down on the needle to draw in and expel the salt solution and wash out all the toxin. The vial is then thoroughly shaken and, finally, the syringe is drawn full of the now diluted toxin and is ready for making the test.

Park, Zingher and Serota[25] report that in the scarlet fever pavilion of the Willard Parker Hospital, 700 patients were tested by the Schick method, and of these 400 (70 percent) gave negative reactions. Only those who reacted positively were immunized. Although 25 percent of the negatively reacting patients became carriers of the diphtheria bacillus during their stay, no case of diphtheria developed among them. The remaining 300 patients were immunized with toxin-antitoxin mixtures, and among those who reacted sufficiently to this method, 42 developed diphtheria, although a great majority of the cases were a mild type. The greatest number of individuals susceptible to diphtheria, as shown by the Schick test, in these 700 cases, were between the ages of one and four years.

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[24] After dilution, the toxin should be used within twenty-four hours, as it deteriorates rapidly.

[25] Archives of Pediatrics, July, 1914, p. 481.

These results coincide with tables furnished by Schick, which show positive reactions in 7 percent of the newborn, 43 percent during the first year of life, 63 percent between 2 and 5 years, and 50 percent between 5 and 15 years. In adults, the positive reactions were not more than 10 percent.

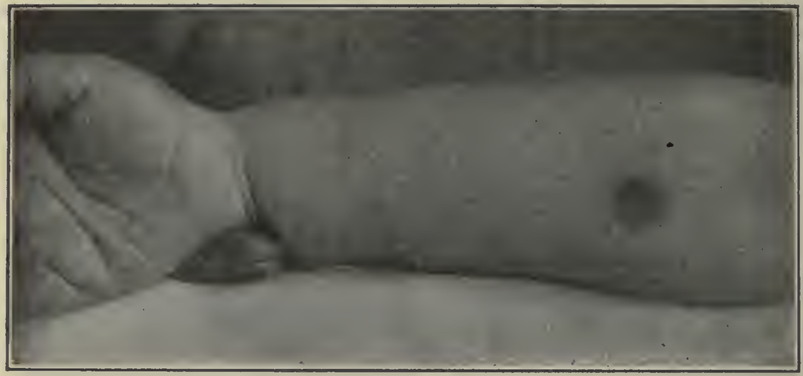

FIG. 7.—Positive Schick reaction. (From Park, Zingher and Serota, *Arch. Pediatrics*, July, 1914.)

According to these authors, it is important to distinguish between a true reaction and a pseudo-reaction—the latter sometimes occurring in older children and adults who have a large amount of antitoxin in their blood. A pseudo-reaction can be distinguished by its early appearance, greater infiltration, being less sharply circumscribed, and disappearing in twenty-four to forty-eight hours. It leaves a faintly pigmented area which does not show superficial scaling.

CACAO DISEASE FOUGHT IN ECUADOR.

The cacao growers in Ecuador are deeply concerned over the appearance of a contagious disease which, when it attacks the fruit, completely destroys it. According to Señor Augusto N. Martinez, director of the agricultural experiment station at Ambato, the malady is caused by a fungus included in the *Peronosporaceæ*, and bearing the name *Phytophthora cactorum*, of Cohn and Lebert, formerly known as *P. omnivora*, Bary, and *Peronospora fagi* of Hartigs, or a closely allied species.

The growth develops in the moisture on the outside of the pod, entering it through some aperture doubtless due to some insect, and destroys it. The development of the fungus requires considerable moisture and a comparatively low temperature. It is checked at 30° C., and dies in four hours at 40° C.

As solutions of copper salts have failed to destroy the fungus, better cultural methods have been recommended.—Consul General Frederic W. Goding in *Commerce Reports.*

POLARIZED LIGHT IN VEGETABLE HISTOLOGY.*

BY C. W. BALLARD, A.M.

Many of our standard references on vegetable histology, while making mention of the polarizing apparatus, do not give much space to the effects of polarized light upon the different plant tissues. Illustrations of starch grains and crystals viewed under this form of illumination are to be found in many of these works, but further details are lacking. As the effects of polarized light are so minutely described in texts upon the microscopy of minerals and microchemical analysis, it has occurred to the writer to consider very briefly the appearances of some plant tissues and their contents when observed through the polarizing microscope.

There are several types of polarizing apparatus supplied by microscope manufacturers. The apparatus is generally separable from the microscope unless the instrument is designed for petrographic work exclusively, in which case the polarizer is built in the body tube. Of separable polarizers, the type which has a fixed analyzing prism and a revolving polarizer adjusted above the ocular is preferred to that in which the polarizer is inserted above the objective. The latter form can only be used on instruments having a revolving stage and, unless used with special objective clamps, hinders free changing from one power to another. While a graduated revolving stage is necessary in critical operations, it is not indispensable in the average work of the vegetable histologist. The most satisfactory objective for use in this work is the 8 mm. (No. 3), although the 5 mm. (No. 4) may be used. Higher powers than the 5 mm. do not give satisfactory results as the field, with crossed prisms, is too dark to note details. It is better to use a comparatively low objective with a high ocular. The combination used in this work was 5 mm. (No. 4) objective with 10 x (No. 5) ocular. Polarization work may be performed by artificial light if a ground glass screen is placed between the source of light and the mirror of the microscope. Best results are obtained with a 100-watt concentrated tungsten filament lamp, hooded so as to shield the stage and the eyes of the observer.

From the standpoint of polarization, vegetable tissues and cell contents are divided into (*a*) those which have no effect upon the light rays reflected through the apparatus, and (*b*) those which modify the direction or speed of vibration of these rays. Materials in subdivision (*a*) are termed isotropic; those in subdivision (*b*), anisotropic. Among the points of interest or of direct value in the examination of vegetable substances by polarized light, the three here stated are perhaps the most essential:

1. Partial or total extinction, or disappearance of the object when prisms are rotated.
2. Markings observed upon rotation of the prisms.
3. Coloration (pleochroism) upon rotation, in some cases running through the shades of the spectrum.

Partial or total extinction may be due to the thickness of the object, as it has been observed that fiber-masses, which ordinarily would not extinguish, are invisible under crossed prisms if the mass is thick or the light weak. Among the tissues which undergo partial or total extinction are cork, epidermis, aleurone, resins and volatile oils. The markings observed under crossed prisms in different cellular elements or cell contents are in some instances very characteristic and may well be considered diagnostic. Starch grains, mucilage deposits and crystals are among the elements which exhibit characteristic markings upon rotation of the prisms. Many substances and cellular elements show wonderful color changes during rotation. We may classify fibers by their response to this test. The true isotropic crystals, or those classified as isometric, should not show coloration. Crystals of all classes, with the exception of the isometric, will exhibit a color change during rotation of the prisms.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

PLANT TISSUES UNDER POLARIZED LIGHT.

Cork.—The masses of cork tissue in the powders examined were in most instances too thick for positive determination. In sections with corky layer attached, the only change under crossed prisms was a clearer differentiation of the individual cell walls.

Specimens examined: Powdered Cascara, Xanthoxylum and Quebracho; sections of Cascara, Xanthoxylum and Oak.

Root Epidermis.—No change could be observed in either powdered specimens or sections. Tissue totally extinguishes under crossed prisms.

Specimens examined: Powdered Sarsaparilla, Belladonna and Calumba; sections of Sarsaparilla, Belladonna and Calumba.

Collenchyma.—This element is usually difficult of differentiation because of the small intercellular spaces. Under polarized light the cell-walls and limits are clearly defined.

Specimens examined: Sections of Peppermint Stem.

Conducting Tissues (*Vessels, Tracheids and Medullary Rays*).—The only result observed in the conducting tissues when viewed by polarized light is a general clearing of the structural details. Such tissues show no signs of extinguishing. The crossed prisms, by diminishing the light ordinarily appearing through the porous parts of the vessel, serve to clearly define the pores, both border and central, with any markings present.

Specimens examined: Powdered Sarsaparilla, Belladonna, Hydrastis, Squill, Spigelia and Quassia; sections of Sarsaparilla, Quassia and Pumpkin Stem.

Trichomes (*Plant Hairs*).—Details of structure are cleared, as are junction points in multicellular and multiseriate types. Extinction as well as coloration characterizes some trichomes.

Specimens examined: Powdered Digitalis, Lobelia, Peppermint, Cannabis, Senna, Mullein, Eupatorium and Salvia.

Fibrous Tissues.—Aside from clearing details of structure, the most practical use of polarized light in dealing with fibers, depends upon the phenomenon of pleochroism. We may separate the fibrous tissues into pleochroic and non-pleochroic classes. Cinchona fibers exhibit this property to the greatest extent, giving many beautiful shades of color. Cinnamon fibers exhibit but slight color change under crossed prisms, while fibers of cotton root bark show no trace of coloration under this manipulation. None of the fibers examined showed complete extinction. The crystal-bearing fibers are seldom pleochroic, although the crystals contained therein may exhibit coloration. Polarization serves admirably to clear questions of presence or absence of crystal-sacs and defines accurately the outlines of the crystals.

Specimens examined: Powdered Cinchona, Cinnamon, Cotton Bark, Quassia, Sandalwood, Scoparius, Licorice, Cascara, Frangula, Quebracho; sections of Cinchona, Cinnamon, Quassia, Licorice, Cascara, Frangula.

Stone Cells.—Some types exhibit a slight but definite coloration, but the majority of specimens examined were lacking in this quality. Accurate definition of pores and striations may be secured. Thick masses, as those occurring in cubeb, are apt to extinguish.

Specimens examined: Powdered Ruellia, Cinnamon, Cascara, Aconite, Cubeb, Physostigma, Pimenta, Chionanthus, and Oak.

CELL CONTENTS UNDER POLARIZED LIGHT.

Cystoliths.—These amorphous calcium carbonate deposits present the appearance of white granular aggregates in the dark field of crossed prisms. In water mounts of powders containing cystoliths there is sometimes a purplish tinge to the mass; this coloration is more pronounced when they are viewed with an instrument in which the analyzer has been substituted for the usual condenser. Cystoliths if very thick will extinguish under crossed prisms.

Specimens examined: Powdered Cannabis Indica and Ruellia; sections of Cannabis Indica Leaf, Ficus Leaf and Ruellia.

Inulin.—Fragments of this substance appear as white masses in the dark field. Neither coloration nor characteristic markings were observed.

Specimens examined: Powdered Inula, Taraxacum and Lappa; sections of Taraxacum and Lappa.

Aleurone.—Cells containing this substance become entirely dark or completely extinguish under crossed prisms.

Specimens examined: Powdered Fenugreek and Mustard; sections of Mustard.

Oil Globules.—The globules of volatile oil in the specimens examined totally extinguish in the dark field.

Specimens examined: Powdered Cubeb, Pepper and Mustard.

Crystals.—It is difficult to apply principles of optical or chemical crystallography to the crystalline deposits of calcium oxalate occurring in plants, because of the many transition forms and fragments present. The location of a perfect crystal in vegetable powders is rather the exception. The crystals of senna and cascara, which the vegetable histologist would without hesitation classify as cubical, in a majority of instances do not react to polarized light as isometric or cubic crystals should. Isometric crystals are classed with the isotropic bodies and should not undergo change during rotation of the prisms. Most so-called cubic crystals in plant tissues would be classified by the crystallographic worker as anisotropic bodies by reason of the changes occurring during rotation of the prisms. This apparent lack of agreement with laws of crystal formation, in the case of these cubic crystals, may be due to limitations of crystal growth by the cell membranes in the living plant. In powdered drugs it might be occasioned by partial fracture of the crystals during grinding. All plant crystals undergo more or less coloration during rotation of the prisms. Coloration is most pronounced in the case of the acicular and the larger prismatic crystals. In the dark field prismatic crystals usually exhibit several black bands running parallel with the visible outer boundaries of the crystal. Cubic crystals usually show one black band parallel with the visible boundaries. The acicular, rosette and microcrystalline types did not show these bands. Rosette and microcrystals may or may not show coloration in the dark field.

Specimens examined: Powdered Senna, Licorice, Frangula, Cascara, Quillaja, Sarsaparilla, Belladonna, Squill, Rhubarb, Castanea, Polygonatum and Quebracho; sections of Sarsaparilla, Licorice, Cascara, Belladonna, Phytolacca and Rhubarb.

Starch.—The main characters to be observed in the examination of starches by polarized light are striations, positions of the crossed lines in the light and dark fields, and comparative width of the arms of the crossed lines. These cross lines are characteristic of all starches. The intersection point of the lines is always through the hilum or anatomical center of the grain. The outline of the cross depends to considerable extent upon the outline of the grain. The width of the angle formed by the cross lines and the relative widths of the arms appear to be fairly constant for each starch. As starches of botanically related drugs show similarities in the shape and formation of the hilum, so do their polarization figures agree. When the prisms are slowly rotated, the cross lines follow the rotation and. sections of the grain which were white under crossed prisms will assume a dark color; the cross lines under these conditions will be outlined in white. Striations appear to be accentuated when viewed by polarized light. In granules having an oval outline, the polarization figure always extends in the direction of the long axis. If the grain is spherical the arms of the figure are usually equidistant from each other and their point of intersection is in the center, corresponding with the hilum. Water mounts will show to best advantage, although permanent mounts may be used.

Specimens examined: Wheat, Rye, Corn, Barley, Maranta and Potato Starches, Aconite, Hydrastis, Cimicifuga, Sarsaparilla, Colchicum, Galangal and Iris Starches.

Mucilage Cells.—Materials to be examined for mucilage are best mounted in glycerin, as an aqueous medium may affect the mucilage deposits. This substance when viewed by polarized light gives effects similar to those observed in the examination of spherical starch grains. The arms of the cross lines are equidistant from each other and always at right angles. The figure is that of a maltese cross. The cross lines change from light to dark upon rotation. Under polarized light in dark field, the mucilage sacs of powdered mustard are readily visible even in very thick mounts.

Specimens examined: Powdered Mustard and Ulmus.

Resins and Gum Resins.—None of the resins or gum resins examined exhibited characters of note when viewed by polarized light. The resin masses in the powdered drugs examined extinguish under crossed prisms.

Specimens examined: Powdered Jalap, Sanguinaria, Serpentaria, Gamboge, Myrrh.

In summarizing we may conclude that the polarizing apparatus is of value in determining minute structural details which in many instances would otherwise escape observation. In sections where the cells are in such close proximity that intercellular space is apparently lacking and cell-walls appear to be continuous, the actual details may be easily and rapidly determined by the apparatus. The writer has found polarized light a readily applied and certain aid in micro-analyses involving determinations of starches, crystals, fibers and mucilage-sacs.

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SPIRIT OF NITROUS ETHER.*

BY H. ENGELHARDT AND O. E. WINTERS.

In a paper on Nitrous Ether presented at the City of Washington Branch of the American Pharmaceutical Association, Kebler, Palkin and Ewing state that in order to preserve the full amount of ethyl nitrite in Spirit of Nitrous Ether the latter must be bottled in small amber-colored containers stoppered with paraffined corks. If stored in large amber bottles kept in diffused light it is necessary to use absolute alcohol in the preparation of the Spirit.

While these recommendations possibly are of theoretical value they cannot well be carried out in practice. It would, for instance, be quite inconvenient for manufacturers to furnish one gallon of Spirit of Nitrous Ether in 128 1-oz. bottles.

Although the question in regard to the stability of Spirit of Nitrous Ether has been investigated numerous times, the following experiments which were undertaken a few years ago with the purpose in view to show at what rate the spirit deteriorates when bottled and kept under ordinary conditions may be of interest. They show that when the preparation is kept in flint, cork stoppered bottles in diffused light, conditions which are ordinarily met with in drug stores, a rather rapid deterioration takes place.

In connection with these experiments a few deficiencies in the test of the pharmacopœial assay process may be pointed out.

The U. S. P. directs that the percentage of ethyl nitrite in Spirit of Nitrous Ether be estimated gasometrically. On various occasions one of us has pointed out that this method might well be substituted by Dietze's Potassium Chlorate Method, as adopted by the Dutch Pharmacopœia, because by this method very accurate results, or at least just as accurate as those obtained by the U. S. P. process, are obtained. Another advantage in this method is that nitrometers and barometers, instruments which are not frequently found in drug stores, are not needed. It is further directed that 30 Gm. be shaken with 0.5 Gm. of potassium bicarbonate. Is this step necessary? The shaking with the alkali is done probably to remove any nitrous acid which has been formed in the spirit by hydrolysis on long standing. But is not nitrous acid just as effective as a stimulant and antispasmodic as its ethyl ester? Furthermore, the length of time during which the spirit is to be shaken with the bicarbonate should be given, because on prolonged standing the ester is saponified by the alkali. The U. S. P. then directs that 10 Cc. of the diluted neutralized spirit be introduced into a nitrometer and mixed with 10 Cc. potassium iodide solution, etc. Another source of error lies in this part of the process, especially when the concentrated salt solution recommended by the U. S. P. for filling the nitrometer is replaced by the mercury. When the two liquids are mixed and when the mercury columns are brought to the same level an accumulation of gas may be observed in the nitrometer amounting at times to 0.6 Cc. or more. This gas is air which was dissolved in the potassium iodide solution, for, when boiled and subsequently cooled potassium iodide solution is used, no separation of gas can be noticed. The U. S. P. should require either that the gas formed when mixing the spirit and potassium iodide solution be deducted from the final volume or that the air free potassium iodide solution should be used. The U. S. P. further directs that the volume of gas should be noted when the volume has become constant (within 30 to 60 minutes). We have found that under ordinary conditions the volume becomes practically constant within a few minutes.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

In the following tables the results obtained both gasometrically and volumetrically with a few samples of Spirit of Nitrous Ether are given. The volumetric method is carried out as follows:

To a mixture of 10 Cc. of distilled water and 5 Cc. of a cold aqueous solution of potassium chlorate 5 Gm. of the spirit and 5 Cc. of 10 percent nitric acid are added. The mixture is frequently shaken during one-half hour in a glass stoppered bottle, mixed with 15 Cc. of a $\frac{N}{10}$ silver nitrate solution and a few Cc. of ferric alum solution, and the excess of silver then titrated back with $\frac{N}{10}$ potassium sulphocyanide. The number of Cc. of silver nitrate solution multiplied by 0.022353 gives the amount of ethyl nitrite in 5 Gm. of the spirit.

	Gasometric. *Percent.*	Volumetric. *Percent.*
NO. 1.		
Estimation direct, without treating with $KHCO_3$:		
Read at once	4.14	4.60
Read after ½ hour	4.13	4.58
Read after 1 hour	4.01	
Shaken with $KHCO_3$ for a few seconds:		
Read at once	3.56	4.01
Read after ½ hour	3.48	4.05
Allowed to stand with $KHCO_3$ for ½ hour, read at once	3.05	3.81
Read after ½ hour	3.00	
NO. 2.		
Shaken with $KHCO_3$ for 5 min.	3.87	4.46
Read after ½ hour	3.85	4.39
Allowed to stand with $KHCO_3$ for 36 hours:		
Read after ½ hour	3.41	
NO. 3.		
Estimation direct without treating with $KHCO_3$	6.95	7.21
Read at once	6.78	7.16
Shaken with $KHCO_3$ for 5 min.:		
Read at once	5.88	6.11
		6.17
Allowed to stand with $KHCO_3$ for 1 hour:		
Read at once	5.45	6.27
		6.21
Allowed to stand with $KHCO_3$ for 48 hours	5.05	5.97
Read at once	...	6.0

From these results it is plainly shown that by the volumetric method higher results are obtained than by the gasometric process. That spirit of nitrous ether is a rather unstable compound, even when kept under ordinary conditions, is shown by the following results covering analyses of spirits of different ages. The samples were kept in completely filled, one-ounce, cork-stoppered, flint bottles, protected from light, but under ordinary conditions as to temperature, etc.

Assayed on date of manufacture.	Assayed on reexamination after	Gasometric.	Volumetric.	Color on date of reexamination.
Percent.	*Months.*	*Percent.*	*Percent.*	
4.44	3	3.58	3.65	Colorless
4.29	7	3.51	3.42	Yellowish
4.25	10	3.67	3.75	Pale yellow
4.2	11	3.26	3.66	Colorless
4.4	13	3.22	3.46	Yellow
4.21	21	3.16	3.33	Yellow
4.4	26	1.34	1.47	Slightly
4.34	31	1.27	1.58	Deep yellow
4.27	38	1.17	1.66	Colorless

These results show that spirit of nitrous ether deteriorates shortly after being manufactured and also that the deterioration is a rapid one after about two years' standing. They further show that the color of the spirit gives no indication of the strength of the product, since samples with slight change of color showed as much deterioration as darker ones.

In conclusion we again wish to strongly recommend the adoption of the volumetric method for estimating the ethyl nitrite in spirit of nitrous ether and amyl nitrite, thus eliminating nitrometers and barometers from the utensils required for assaying pharmaceutical preparations altogether. Unfortunately, however, the new Pharmacopœia again gives the gasometric estimation of the ethyl nitrite.

LABORATORY SHARP & DOHME, Baltimore, Md.

THE ASSAY METHODS AND PURITY REQUIREMENTS OF THE PHARMACOPŒIA AND THE NATIONAL FORMULARY.*

BY MARTIN I. WILBERT.

The new Pharmacopœia of the United States, ninth decennial revision, and the National Formulary, fourth edition, impose additional responsibilities on the manufacturer as well as on the vendor or distributor of drugs and medicinal preparations. For the first time, in this country at least, fixed maximum as well as minimum requirements are made in the Pharmacopœia and in the National Formulary, and it is fair to assert that no books of standards now available come so near to theoretical perfection as do the new editions of our official standards which are now being distributed.

The purity rubrics introduced in the Pharmacopœia of the United States a decade or more ago have been considerably elaborated, and in the present edition the rubric for each article is generally accompanied by a specific method of assay.

This change in the nature of the official requirements is due to the fact that many critics of the previous edition of the Pharmacopœia of the United States have called attention to the desirability of having a clear, concise definition for each article or preparation, with a minimum and maximum limit for the active ingredients, to be accompanied by practical methods for their determination.

It has long since been asserted that it is impracticable, if not actually impossible, to comply absolutely with an unflexible fixed standard and it has also been pointed out that a fixed minimum requirement without a corresponding restriction of the maximum content of active constituent is unsatisfactory, in that it would not insure any degree of uniformity in the nature of the product. These several objectionable features of the previous editions of the official standards for drugs and medicines, it is thought, have been overcome by the modifications introduced in the now official editions.

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* Read before Scientific Section, A. Ph. A., Atlantic City meeting, 1916.

The comparative table showing the strength of the most important pharmacopœial substances and preparations in the preceding and in the present pharmacopœias includes a total of 192 titles: 85 chemicals, 25 drugs, and 82 preparations. For no less than 34 of these drugs and preparations the previous edition of the Pharmacopœia contained no assay method or purity requirement. The purity requirement in connection with 25 chemical substances has been slightly increased and in connection with 22 chemicals has been slightly decreased, while 1, calcium chloride, has been changed from the anhydrous to the hydrated form, or from 99 to 75 percent of $CaCl_2$. The alkaloidal content of Hyoscyamus has been changed from not less than 0.08 percent to not less than 0.065 percent of the alkaloids from Hyoscyamus, and the requirement for Pilocarpus has been raised from 0.5 percent to 0.6 percent of the alkaloids from Pilocarpus.

The requirement for Oil of Clove has been changed from not less than 80 to not less than 82 percent of eugenol, and the requirement for Oil of Cassia has been correspondingly changed from not less than 75 to not less than 80 percent of cinnamic aldehyde.

The strength of 9 galenical preparations has been slightly increased and that of 11 preparations slightly decreased.

The more important changes in this connection are those evidenced by the preparations of opium, which are now on a basis of 10 to 10.5 percent of anhydrous morphine in place of from 12 to 12.5 percent of crystallized morphine in the U. S. P. VIII. All of these several changes are, however, negligible in comparison with the now general practice of definitely stating the maximum as well as the minimum strength of preparations of active drugs.

In many instances the permissible variation is less than 5 percent above or below the mean which usually corresponds closely to the previously official requirement. In but one instance (Spirit of Nitrous Ether), the permissible variation from a whole number slightly exceeds the maximum of 10 percent above or below the average of the now official requirement. In connection with several drugs and preparations containing small proportions of alkaloids the permissible variation is somewhat high.

No pharmacopœia now in force contains so many directions for assay as does the new Pharmacopœia of the United States. The total number of assay requirements in the new Pharmacopœia aggregates 287; 157 of which are for chemicals, 44 for drugs and 86 for preparations.

Of the 44 drugs, 16 are directed to be assayed chemically for alkaloids, 1 is to be assayed biologically for the relative activity of its constituents, and in connection with 5 additional drugs a biological method of assay is recommended. One of the drugs, aconite, is to be assayed both chemically as well as physiologically. Three drugs are to be assayed for resins, 3 enzyme preparations are to be tested for their enzyme action and 13 volatile oils are to be assayed for active constituents.

Of the 86 preparations, 36 are to be assayed chemically for alkaloids, 3 are to be tested biologically for their activity and for 11 others an alternative biological method of testing is recommended.

The assay methods for galenical preparations include 7 assays for diluted acids, 1 alkaloidal assay for a plaster, 9 chemical assays for alkaloidal content of extracts and 1 biological assay, 11 alkaloidal assays for fluidextracts and 3 biological assays, 1 required and 2 recommended. Of the 18 tinctures included in the list 12 are to be assayed for alkaloids, 2 for their chemical constituents and 1 is required to be assayed biologically and for 4 others a biological assay is recommended.

The National Formulary includes methods of assay under 52 different titles: 23 preparations, 7 drugs and 22 chemical substances. Of the 7 drugs, 4 are to be assayed for alkaloids, 1, rennin, is to be tested for its milk curdling properties, 1, lime juice, is to be tested for acid content, and 1, oil of bergamot, is to be assayed for linaloyl acetate. The requirements for chemical substances in the National Formulary are quite as high as the requirements that have been included in the Pharmacopœia and the permissible variation is frequently not more than 5 percent from the apparent average on which the variation is based.

The question naturally arises, are our theoretically much improved standards practically applicable at the present time and are the standards for excellence that have been set in connection with the maximum and minimum limitations equitable and attainable from a practical point of view, or have the limitations, in many instances at least, been fixed at too narrow a range? With the Pharmacopœia as yet not available (August) to a large proportion of the pharmacists of the country, it is, of course, entirely premature to discuss the practical results that will follow its promulgation as a standard, but it is fair to point out at the present time that the permissible variations from the mean of the standards have in many instances been fixed at a very much more limited range than has heretofore been the practice in connection with the enforcement of pure drug laws. Even a superficial comparison of the requirements of the Pharmacopœia with the reports of state food and drug chemists will readily demonstrate that a strict interpretation of the now official requirements will insure to the consuming public drugs and medicines more uniform in strength and composition than have hitherto been available.

REPAYING ALMA MATER.

A Chicago boy, James V. Nash, who worked his way through college, has given the first $1,000 of his earnings since graduation to the institution that gave him the educational equipment wherewith he faced the world. His attitude of mind may not be unusual, but his practical exemplification of his theory goes much further than most baccalaureates are willing to carry their loyalty. He bears witness to his gratitude with a sacrifice that is as generous, in proportion, as the rich man's gift of many thousands. To many a man the payment of his term bills discharges most of his obligation to his college. He does not consider the bounty he receives from those who endowed professorships and founded scholarships and erected dormitories before his time for his present-day inheritance. The sum he pays is an inconsiderable fraction of the value of the bounty he receives. In after days he complacently permits the begging-bowl to pass by him without a contribution. He owes his college nothing but a little reunion enthusiasm at commencement, a few cheers for the wine, a song or two at a festal banquet. The young Chicagoan holds a different philosophy. He did not choose to wait till he reached the apex of his " pile " before making repayment for the value he felt he had received. No college would have a struggle for survival if it could count on the support of a number of like-minded alumni.—*Public Ledger.*

SECTION ON PRACTICAL PHARMACY AND DISPENSING, AMERICAN PHARMACEUTICAL ASSOCIATION

THE REAL AND THE IDEAL IN DISPENSING.

RANDOM REFLECTIONS.

BY L. E. SAYRE.

Many and devious are the ways of the pharmacist for making an honest living. Some emphasize one phase of the vocation, others another. Some specialize in sundries—with "side-lines to the front." Expert salesmanship, skilful buying, advertising and even the curb-stone gasoline supply pump has been installed as compatible with the vocation, especially by those who are on the firing line fighting the commercial adversaries, the department store, the mail order, the chain store, the itinerant vendor and others. All honor to our commercial soldiers who will not lie down or run from the field! They are making an honest living in pharmacy and have the courage of their convictions that commercialism in pharmacy is the best means of promoting the interests of our calling. There are others who are also courageous—those who look at pharmacy from a different viewpoint—consecrating their efforts upon manufacturing and dispensing. It is to those these random reflections may be of interest.

It seems to the writer that the time has come when pharmacists should emphasize and take a broader view regarding the authenticity of Drugs and Drug Preparations. Few perhaps are more impressed with this problem than one who has for several years been burdened with the responsibility of assisting in the administration of the Food and Drugs Law. Scores of preparations drift into the trade and are found on the shelves of pharmacy stores which are seemingly devised to take advantage of public ignorance. It is true that the public demands these advertised articles, and I am not criticizing a merchant for what the members of his community demand, but I would say that if pharmacists would have a deeper conception of what is involved in authentic material it would in a greater measure check them in forwarding the cause of deceit.

The United States Pharmacopœia and National Formulary propaganda has had some effect in calling the attention of the medical profession to a certified list of medicinal agents. This effort has been resented here and there from different motives, but in the main the propaganda campaign has been fruitful of favorable results.

This campaign was partly directed toward overcoming the growing evil of medicinal combinations duplicated by various manufacturing establishments, the pharmacist being compelled to keep a supply of the same preparation made by two, three, or more different laboratories—each claiming a superior preparation and each convincing different groups of physicians of the reliability of their claims. Whether this campaign has lessened the burden of the pharmacist it is difficult to show, but that the practitioner has become better informed regarding certified preparations, through this team work of pharmacists as well as physicians, there is little doubt. This team work, discouraging as it has been, should be continued, and a broader policy adopted—a policy that would debar, as far as possible, unauthenticated material. We have now in the possession of the two professions, the United States Pharmacopœia, the National Formulary, New and Non-Official Remedies, and other publications of the American Medical Association. In addition we have the current pharmaceutical and medical journals and it is hoped we shall have later the A. Ph. A. Recipe Book; all these give a volume of open formulas and a compass of remedial agents outside of which it would seem a transgression of authenticity to go.

What is meant by the restraint which a certified list would put upon the pharmacist and physicians is, a list such as would be comprised within the above well recognized sources. Such a self-imposed restraint by organized team work would be not only consistent with the dignity of the pharmacist, but would align him with a movement sanctioned by the medical profession and the public. Furthermore, it would be an official check upon the guileless public in patronizing unwarranted preparations, the formula and ingredients of which he is not only not conversant with, but the means by which he may be informed are partly or wholly denied him. This policy would eventually involve not only a release from the unprofitable patent medicine business, but much more. It would mean a policy the two professions have been groping toward for years. It means more than an open formula policy—which is often only a half revealed formula, the other half being a key to the preparation. Such a policy would mean a more intelligent dispenser—one who would be induced to learn and to know the history and record behind a given drug or preparation. The appendicitis and consumption cures, so-called "Prescription Compounds," and many other classes of preparations would have to give a reason for their existence, or they would meet the team work obstruction they are entitled to. From personal pride one would not recommend a remedy which he has not proven worthy either by direct knowledge or reliable recommendation. Instead of working for the prestige and profit of some expert advertiser, he will work for his own prestige as well as profit. This is by no means a new thought, it is indeed an old one that needs to be repeated over and over, in every possible form, so that it will finally command more extensive and united action. Very recently I found this statement in one of our leading pharmaceutical journals and I quote verbatim: "I believe," says the writer, "that no man can persuade himself that he is doing right in helping to foist upon sick people whose illness he knows nothing about, stuff that he does not know enough about to know whether it ought to be good for them or not."[1] This opinion, coming from a pharmacist, the physician would say has something of an ethical tone to it and if an extensive, determined and united effort were made in the direction indicated the medical profession would have less grounds for complaint and to say that pharmacists are independent and resent any interference on the part of the medical fraternity does not mitigate the evil or remove responsibility—both physician and pharmacist are responsible to the public.

The writer is aware of the feeling of the extremists in the profession of medicine who express themselves vehemently against the pharmacist's right to know anything about the action or application of any remedial, much less to express any opinion upon the same.

It is true the pharmacist has no right to pose as a diagnostician, but he certainly reserves the right to know about drugs, their preparations, their value as remedial agents and about their application. By his better knowledge of drug constituents and possible combinations he is often able to lend some assistance to the practitioner, which the latter has not infrequently cordially recognized as valuable.

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[1] David Strang in *Druggists' Circular*, August, 1916, p. 475.

A pharmacist who may show his ability, following the policy indicated, of knowing about the remedial agents he dispenses, agents which have an established record, approved by investigators; a pharmacist who will refuse to forward the interest of those who care nothing for authenticity, whose principal interest lies in a profitable revenue, will have little difficulty in securing the coöperation of the members of our sister profession. Such a coöperation existing, the problem which surrounds the question of household remedies and remedies for minor ailments will be more successfully met. These remedies the public will demand, naturally. It is a demand which should be intelligently and constructively controlled so that the ignorant public may be protected and may be induced to use more judgment and discrimination in its demand for over-commercialized medicinal agents. Household remedies from time immemorial have been easily available without waiting in line at the physician's office. They should be, however, required to meet standard requirements which the pharmacist is especially capable of meeting. The clamor for "preventive medicine" means preventive sickness. Remedies for minor ailments which do not call for service of a diagnostician is one important factor in this important field. In supplying these remedies the pharmacist would not, surely, encounter the criticism of physicians. If he should, the public would not be likely to lend its support, seeing that such a criticism was most likely rooted in a hidden motive not altogether humanitarian in its nature.

THE EARLIER YEARS OF SIR HUMPHREY DAVY.

Sir Humphrey Davy in earlier life was considered eccentric and won a reputation for odd and original thinking. He reasoned out things for himself, dissecting the causes of all happenings and forming his own conclusions. Some of these were considered idiotic, as, for instance, when he wore on a very hot day a heavy overcoat and explained his action by saying: "If it will keep out the cold, it ought to keep out the heat."

At the age of sixteen, he was apprenticed to an apothecary. His apprenticeship was not an entire success in the eyes of the apothecary, largely because of Davy's continual experimenting, but he certainly in a very short time acquired more knowledge of chemicals than the apothecary who employed him. Possibly the making of "thunder powder" lost him his position in the drug store, for a few days afterward an elderly Englishman, named Tonkin, who had charitably given refuge to Humphrey Davy, expressed his opinion of Davy by saying that he was incorrigible, and would blow everyone in the community into eternity with his silly chemical messes. This followed an explosion which had blown part of Tonkin's kitchen to atoms.

Some of Davy's early apparatus consisted of bowls, glasses, tea-cups, jars and tobacco pipes. The money for his earlier experiments was secured through his writings. He gradually advanced step by step and before he had reached manhood his immortal life work had begun.

GALENICALS ADDED TO U. S. P. IX.*

BY OTTO RAUBENHEIMER, PHAR.D.

Of special interest to the dispensing pharmacist are the new galenical preparations in the U. S. P. IX. He should become acquainted with them, the sooner the better, and it is to his benefit financially as well as professionally to manufacture these galenicals himself.

The object of this paper is not to copy the monographs from the U. S. P. IX, but to explain the processes. After all, the real pharmacist should become acquainted with the "Reasons Why" in the Pharmacopœia as well as in the National Formulary.

ADDITIONS.

The additions to U. S. P. IX comprise the following galenical preparations: 1 water, 3 plasters, 5 extracts, 2 fluidextracts, 2 magma, 1 oleoresin, 1 tablet, making a total of 15.

AQUA DESTILLATA STERILISATA.

Sterilized Distilled Water.

To many it will be a wonder and a surprise to see this preparation introduced. The impression that *distilled water* is *sterilized water* is now knocked in the head, and let us hope that it will die!

Explicit directions are given with reference to the chapter on Sterilization. Do not forget to pay special attention to the last two lines: "Sterilized Distilled Water should be used within forty-eight hours after its preparation."

PLASTERS.

There are three new plasters admitted in U. S. P. IX.

EMPLASTRUM CANTHARIDIS.

Cantharides Plaster.

This is a "spread plaster," made by spreading cantharides cerate on rosin plaster or on any other suitable material. Nothing else but the spread "Spanish fly blister," used for centuries. Should be freshly prepared.

EMPLASTRUM ELASTICUM.

Rubber Plaster.

This is the "Rubber Adhesive Plaster" found in the market and takes the place of "Emplastrum Adhesivum" of U. S. P. VIII, which was not a satisfactory plaster.

EMPLASTRUM RESINÆ.

Rosin Plaster.

This is the *body* for the ordinary "Adhesive Plaster" or "Rosin Adhesive Plaster," the old-fashioned variety frequently called "Diachylon Adhesive Plaster." It is prepared by melting together lead plaster, rosin and yellow wax. This mass, when melted, can be spread as a "sticking plaster," or other medicinal ingredients can be added and then spread.

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City meeting, 1916.

Although not in the province of this paper, I might mention that Emplastrum Plumbi is now prepared in the good old fashioned way, namely, by boiling together olive oil, lard, lead oxide and water.

Emplastrum Sinapis is the new and more correct title for Charta Sinapis of U. S. P. VIII. Customers always call for Mustard Plaster and not Mustard Paper!

EXTRACTS.

The U. S. P. IX contains five new extracts. There are two entirely new features in these preparations:

1. The statement under each extract that it represents an approximate quantity of the drug, thereby establishing a definite ratio between drug and extract.
2. The introduction of *powdered* extracts, which are a great convenience for weighing small quantities.

EXTRACTUM ACONITI.

Extract of Aconite.
Powdered Extract of Aconite.

The drug is extracted with a menstruum of alcohol containing tartaric acid, to extract the alkaloids. Mineral acids cannot be used as they decompose the aconite alkaloids. The syrupy extract is then extracted with purified petroleum benzin, in order to remove the oil and fat, so as to be able to produce a powdered extract, which is accomplished by the addition of starch and the application of heat.

This is an assayed extract which should yield not less than 1.8 percent nor more than 2.2 percent of the ether-soluble alkaloids of aconite.

An *alternative* method, namely, a Bio-Assay, is also given.

1 Gm. Extract represents about 4 Gm. Aconite.

EXTRACTUM FELLIS BOVIS.

Extract of Oxgall.
Powdered Extract of Oxgall.

This powdered extract replaces the pilular Fel Bovis Purificatum U. S. P. VIII. Oxgall is extracted with alcohol, which dissolves the active constituents, sodium glycocholate and sodium taurocholate, leaving behind the albuminous and also the coloring matter. Starch is used as an absorbent and as a diluent to produce a powdered extract of oxgall.

1 Gm. Extract represents 8 Gm. Oxgall.

EXTRACTUM GELSEMII.

Extract of Gelsemium.
Powdered Extract of Gelsemium.

The gelsemium is exhausted with alcohol by percolation. The alcohol is recovered by distillation, and the soft extract is evaporated with a mixture of 1 part of magnesium oxide and 3 parts of starch as absorbent.

1 Gm. Extract represents 4 Gm. Gelsemium.

EXTRACTUM HYDRASTIS.

Extract of Hydrastis.
Powdered Extract of Hydrastis.

The drug is exhausted with alcohol acidified with tartaric acid. The vegetable acids are coming more into use, especially when active principles are injured by mineral acids. The remaining *modus operandi* is the same as in Extract of Gelsemium.

1 Gm. Extract represents about 4 Gm. Hydrastis.

This is an assayed extract which should yield not less than 9 percent nor more than 11 percent of the ether-soluble alkaloids of hydrastis.

EXTRACTUM VIBURNI PRUNIFOLII.

Extract of Viburnum Prunifolium.
Powdered Extract of Viburnum Prunifolium.

Process and diluent the same as in Extract of Gelsemium.

1 Gm. Extract represents 5 Gm. Viburnum Prunifolium.

FLUIDEXTRACTS.

Two additional fluidextracts have been admitted.

FLUIDEXTRACTUM ASPIDOSPERMATIS.

Fluidextract of Aspidosperma.
Fluidextract of Quebracho.

Prepared by Type Process B:

MENSTRUUM I.	
Glycerin	110 mils
Alcohol	670 mils
Water	220 mils

MENSTRUUM II.	
Alcohol	2 volumes
Water	1 volume

FLUIDEXTRACTUM SABAL.

Fluidextract of Sabal.
Fluidextract of Saw Palmetto.

Prepared by Type Process A:
Menstruum: Alcohol 4 volumes and water 1 volume.

LIQUOR SODII CHLORIDI PHYSIOLOGICUS.

Physiological Solution of Sodium Chloride.
Physiological or Normal Salt Solution.

This is a *sterilized* solution containing 0.85 percent NaCl.

The preparation of this solution should be well studied by pharmacists, as it is of the utmost importance. Two requirements are absolutely necessary in this and other " saline " solutions:

1. Perfect sterilization.
2. Prevention of contamination.

U. S. P. IX very correctly makes the provision, "This solution should not be used after it has been made forty-eight hours."

Other Physiological Solutions, Ringer's, Locke's, Adler's and Fischer's, have been published by the Com. on Recipe Book as Pharmaceutical Formulas in the J. A. PH. A., July, 1916.

MAGMA BISMUTHI.

Bismuth Magma.
Milk of Bismuth.

Yields not less than 5.6 percent nor more than 6.2 percent of Bi_2O_3.

A very simple gravimetric assay is given.

This is the Raubenheimer-Beringer formula. Original formula and particulars can be found in *Proc. A. Ph. A.*, vol. 57 (1909), p. 1024.

MAGMA MAGNESIÆ.

Magnesia Magma.
Milk of Magnesia.

Yields not less than 6.5 percent nor more than 7.5 percent of $Mg(OH)_2$.

A volumetric assay is given, namely, addition of Normal H_2SO_4 and titrating excess with normal KOH, using methyl orange T.S. as indicator.

An entirely different formula as well as *modus operandi* from the one in N. F. III. It is the method of Wilson W. McNeery, which was first presented before the Philadelphia Branch of the A. Ph. A. It is based upon the mutual decomposition of a mixture of magnesium carbonate and a solution of sodium hydroxide, forming a magma of magnesium hydroxide and a solution of sodium carbonate, the latter being removed by thorough washing. The U. S. P. directs that Milk of Magnesia should be kept in tightly stoppered bottles, to prevent the absorption of CO_2, and that the corks should previously be dipped in melted paraffin, as otherwise the preparation attacks the cork, soils the inner neck of the bottle and discolors the milk.

In a note the U. S. P. states that, in place of distilled water, ordinary water can be used which has been boiled with 5 Gm. of powdered magnesium carbonate per liter and then filtered. Water treated in this simple manner will answer as well as distilled water, which latter increases the cost of the preparation.

The writer cannot speak with authority on this formula or *modus operandi,* as he is still using the N. F. method, which produces a finely divided and freshly precipitated magnesium hydroxide.

I can see one danger in the U. S. P. IX formula, namely, that magnesium carbonate in barrels is very apt to accumulate dust and dirt, which will thus enter the milk of magnesia.

OLEORESINA PETROSELINI.

Oleoresin of Parsley Fruit.
Liquid Apiol.

Powdered Parsley Fruit is exhausted in a percolator with ether, the greater portion of which is recovered by distillation on a water bath. The rest of the ether is removed by spontaneous evaporation and the clear liquid portion is decanted from the solid residue, which is a wax.

The name *Apiol,* that is, oil of apium, was coined from *Apium Petroselinum,* the old name for parsley.

TOXITABELLÆ HYDRARGYRI CHLORIDI CORROSIVI.

Poison Tablets of Corrosive Mercuric Chloride.
Corrosive Sublimate Tablets. Bichloride Tablets.

These are tablets of an angular shape, that means *any shape excepting round.* Each tablet must have the word " Poison " and the "skull and cross bones" design distinctly stamped upon it, for which reason they are properly named " Toxitabellæ." Each tablet weighs about 1 Gm. and contains not less than 0.45 Gm. nor more than 0.55 Gm. of $HgCl_2$, the remainder being NaCl.

It has been customary to manufacture 1 Gm. tablets. A larger size tablet weighing 2 or 3 Gm. would be far safer and *could not be swallowed accidentally and only with difficulty intentionally.* The $HgCl_2$ content is 0.5 Gm. average, thus producing a one per mille solution when one tablet is dissolved in one pint of water. A gravimetric assay is given in which the mercury is precipitated as sulphide. The Electrolytic Method may also be used alternatively.

Sodium Chloride is employed as the diluent and forms a double salt with mercuric chloride, which is more soluble in water than the latter itself.

Bichloride Tablets must now have a uniform color, namely *blue.* Experiments have proven that the most permanent blue is obtained with Sodium Indigotindisulphonate, commonly called Indigo Carmine.

The new Pharmacopœia also directs how these tablets are to be dispensed, namely in securely stoppered glass containers, on the exterior of which is placed a red label bearing the word " Poison " and also stating the required amount of $HgCl_2$ in each tablet.

This is an excellent example of how our U. S. P. acts as a guardian for public health and safety!

CONCLUSION.

From a pharmaceutical point of view the addition of these 15 galenicals is highly commendable. The preparations themselves seem to be satisfactory. Let us hope that physicians will make good use of them, frequently prescribing them, quite especially as the Sub-Committee on Scope, which is responsible for these additions, consists principally of members of the medical profession.

Department of Pharmacy, College of Jersey City.

A PLEA FOR FURTHER STUDY OF GREEN PLANT DRUGS.*

BY H. W. JONES.

Our knowledge of therapeutics being based upon experimental data, it is quite natural that our medical men should turn hither and yon in search of new remedies which might replace those already in use. No matter how satisfactory our remedies may be, there are always cases in which they will fail; and because they do sometimes fail, we are ever on the lookout for those which will be a little more sure. Like children gathering shells upon the beach, we collect our remedial agents, pausing to examine and discuss each new find, only to cast it aside when one more novel or promising appears. Therefore it is quite natural that in our search we should discard many remedies of great value, perhaps of greater value than those which have replaced them.

So it is that the roots and herbs used by our forefathers have been largely discarded for the more up-to-date remedies. The development of synthetic chemistry brought us a legion of remedies, most of which have proven of doubtful value. Serum therapy, organo-therapy and many other therapies appeared and have their following. In late years we have observed a gradual return to botanical drugs; a return which has been stimulated by the European War and the shutting off of supplies of synthetics. The new therapies have been more or less disappointing, and the prophecy of Prof. Tschirch, made in 1909, of a "return to drugs" seems about to be realized.

The years which have wrought all these changes have seen also a marvelous economic growth in our country. In past generations the physician or apothecary generally gathered his own supply of drugs and prepared his galenicals *secundem artem;* but to-day we find the marketing of these drugs largely in the hands of a few dealers. The physicians and druggists of to-day know little of roots and herbs, excepting as they see them occasionally in the dry state as they come from the dealer; while for the therapeutic effects of these drugs they depend upon the extracts and fluidextracts of the manufacturers, prepared according to the standards of to-day, which standards are practically without exception based upon *dried* drugs. In times gone by the preparation of galenicals was a matter of great care, and the physical condition of drugs a prime factor. In these days, with our chemical and physiological methods of assay, we depend upon the presence of certain active principles without regard to the other natural constituents of the drug or the changes which may have taken place in it since its gathering.

And so we come to the question: Do dried drugs represent the full therapeutic activity of the plant, and are they for some reason superior to plants in the fresh state?

In order to reach some basis for an answer to this question let us first consider what happens when a plant is dried in the usual way. To begin with, the gathering of a plant means the cessation of its life and the beginning of decomposition. True, this decomposition is slow, but nevertheless there is a breaking-down of the tissues. This we attempt to arrest by removing the water from the plants, but even in the dry state decomposition goes slowly on. For proof of this we have only to examine dried drugs kept for a number of years and we will find, as a rule, that they have slowly disintegrated and are ready to fall to dust in our hands. This, of course, is an extreme case, for drugs are generally used before reaching this state. However, aside from this disintegration, there are other changes taking place during and after drying. If the drug contains volatile principles these are partially or wholly lost. Certain plants contain fixed oils which become oxidized just as the linseed oil in paint is oxidized. Most important, however, is the action of enzymes, which as stated by Prof. Tschirch in his splendid presentation of the subject,[1] does not cease with the drying of the plant, but continues indefinitely. By the action of these enzymes many new products are formed; the hydrolases splitting up glucosides, the oxydases causing the oxidation of certain components. Starches and sugars are formed and the composition of the plant is quite altered.

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* Read before Section on Practical Pharmacy and Dispensing, A. Ph. A., Atlantic City meeting, 1916.

As a rule, drying a plant improves its odor. Here enzyme action plays its part, splitting off odorous principles from inodorous ones already in the plant. Color changes always occur, although this is relatively unimportant. The effect upon alkaloids is apparently negligible, although it has been observed that alkaloids are more easily obtainable in a crystallized form from fresh plants and that the alkaloids from dried plants are usually amorphous.

It is evident then that there can be but little in common between the fresh and dried plant. The one has the form but not the substance of the other. Therefore it follows that, being two quite separate and distinct substances, we cannot expect their therapeutic properties to be identical. In fact we would suppose them to be quite different. To show that they really are different let us consider a few specific examples.

The following extracts from prominent works on Materia Medica and Therapeutics reveal the views of the different writers as they are influencd by the use of the dried or fresh drugs. Take, for example, *Stillingia sylvatica,* of which the dried root is official. " Stillingia belongs to that class of drugs to which powerful alterative properties were attributed, but, like the other members of the group, the evidences of its power are not very convincing." (*National Standard Dispensatory,* p. 1455.)

" While the dried root is active, the recent root is far preferable. The present writer has used stillingia very largely, and believes a decoction of the recently dried root to be a most potent alterative." (Blair, *Materia Medica and Therapeutics,* p. 219.)

" There can be no doubt that this drug acts in two ways: first, by its immediate effects on the system, and, second, by its more slowly shown alterative influences. . . . The only official preparation is the fluidextract, which should always be made of the fresh root." (Hare, *Practical Therapeutics,* p. 464.)

" The fresh root should be used in making the preparations, as those from the dried root are almost inactive." (Potter, *Therapeutics, Materia Medica and Pharmacy,* p. 466.)

We pass without comment to Cottonwood Bark, at one time popular as an oxytocic, but now falling into disuse. The dried bark of the root is official.

" Is said by some gynecologists to resemble ergot in action on the uterus. It has little or no effect on animals, except in enormous doses, and is generally stated by those who have tested it to be entirely devoid of action in man." (Cushny, *Pharmacology and Therapeutics*, p. 463.)

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[1] " The Enzymes in Their Significance for Pharmacognosy," Prof. A. Tschirch. A lecture delivered before the International Congress of Pharmacy at The Hague, September, 1913 (*Apoth. Zeit.,* 1913, p. 866. Translated in *Pharm. Era,* 1913, pp. 595–597, and 1914, pp. 5–6.)

"Is believed to be an efficient emmenagogue and oxytocic by southern practitioners, . . . but experiments on pregnant animals have not confirmed this view of its action." (Potter, *Therapeutics, Materia Medica and Pharmacy*, p. 293.)

"It may be employed as an oxytocic during labor, and is said to be a much safer remedy than ergot . . . The fresh is probably more reliable than the dried bark, but if gathered late in the autumn before frost, and properly dried, it still possesses some of its medicinal properties." (*National Standard Dispensatory*, p. 736.)

"This is a powerful emmenagogue and abortifacient in large doses. In smaller doses it is of value to control hemorrhages of uterine fibroids and incipient cancer. Most of the fluidextract of cottonroot bark upon the market is nearly inert. Only the fresh or very recent bark is active." (Blair, *Materia Medica and Therapeutics*, p. 120.)

These extracts tell their own story, and many other examples might be cited where the preparations made from dried drugs are reported as inert and useless, and yet by those who use the same drugs in the fresh state a quite different result is obtained and these drugs are lauded as having the highest therapeutic activity. Acknowledging, as we must, the inherent differences between fresh and dry drugs, what can these different findings mean, if not that we have neglected the opportunity of developing our native materia medica by closing our eyes to the possibilities of green-plant drugs? It does not follow, however, that all drugs should be used in the fresh state, for we all know that many drugs must age a certain time in order to develop, by the enzyme action already mentioned, their characteristic medicinal properties; but where, by clinical trials, a drug is found to yield better results in the fresh state than in the dry, why should prejudice and conservatism restrain us from using the most efficient remedies? Granting that many of our plant remedies are more efficient in the fresh than in the dry state, does not the pharmacist owe it to the physician and the physician to his patient to furnish these more efficient remedies? Because these remedies have been used for years by the minority schools of medical practice, should we cast them aside as worthless? Because they do not conform to our long-accepted standards of pharmaceutical practice, should we refuse to cast the light of modern research methods upon them and bring them out of the shadow of empiricism in which they have so long rested? That this is not the spirit of the pharmaceutical profession is evidenced by the propaganda being carried on by the National Association of Retail Druggists, in its official organ, for a return to our native green-plant drugs.

True, the Pharmacopœia has for years carried in its pages as a sop to the green-drug advocates the Tincturæ Herbarum Recentium, but these are little better than useless and quite deserve the place to which they have been relegated. The contention of the opponents of green-drug preparations, that because of the large amounts of water contained in the drugs, there can be no uniformity in the preparations, is quite justifiable. With drugs containing assayable principles, the problem of standardization is simple, but what are we to do if we wish to obtain uniformity in green-drug preparations which cannot be assayed?

It is the custom of those manufacturers who make a specialty of green-drug preparations to place the drugs in strong alcohol at the time of collection and store them in tightly closed containers. This procedure no doubt inhibits the enzyme action, and if the moisture in the drug is determined before packing, a basis for uniformity is obtained. There is another procedure, used to some extent in Europe, which offers some excellent ideas. This is the process of sterilizing the fresh plants by the use of alcohol vapor or similar means. In this way the enzymes are destroyed and further changes in the plant prevented. Drying might be resorted to after sterilization with little fear of injury, at the same time rendering the drug much more stable and uniform.

The intent of this paper, as its title indicates, is to direct the attention of its readers to this class of drugs in the hope that sufficient interest may be aroused in them to cause a further study of their uses. Here is a wide field of research, for the therapeutic use of green-plant drugs has hitherto been largely empirical. An effort to place them on a scientific basis seems desirable, for clinical results attest their efficacy. Many lines of research suggest themselves, such as a comparison of the therapeutic activity of the plant in its fresh state with that of its dry state in order to determine which is the more effective; a comparative study of the constituents of the two forms of the drug with reference to possible standardization; a development of proper methods for handling the drugs and making their preparations.

The interest already aroused in this country in the cultivation of medicinal plants is a sure indication of the return to these remedies. Here is an interesting and profitable work which the druggist may carry on. For a druggist to have his own medicinal plant garden means a return to pharmacy in its highest and best. For those interested in this work the coöperation of universities and experiment stations, now engaged in the work, is assured. And the reward will be a better materia medica, an increased knowledge of drugs and a larger margin of profit. Let us then cease to overlook the possibilities of this branch of our materia medica, and by a concerted effort, endeavor to bring back that feeling of confidence in our botanical drugs which formerly existed.

OVERHEAD CHARGES.

Anyone can take a pencil and paper and figure out a way to become very rich by raising chickens. Every farmer's wife can make a large profit out of a few chickens, ducks, geese and other fowl; that is the profit is large in proportion to the capital invested. But when it comes to raising chickens by the hundred or thousand, special risks of contagious disease, etc., become factors and calculations based on raising a few fowl do not hold good when applied to larger enterprises.

This applies to other business enterprises. It is easy to prove by figures that large industrial corporations can produce at lower costs and undersell small competitors, but the figures do not always hold good in practice. If they did new concerns could not come to the front so easily. It is a common experience to find a man, successful in a small way, fail to achieve success after expanding his operations. His overhead charges often grow faster than his business when it passes the point where he can supervise everything personally.

Large corporations are like the man who tries to raise chickens by the thousand. With size come more loopholes for waste to close which come additional expenses of oversight and systemization. Personal contact with customers is an advantage of which the small man cannot be deprived.—From an editorial in the *Philadelphia Ledger.*

SECTION ON COMMERCIAL INTERESTS, AMERICAN PHARMACEUTICAL ASSOCIATION

MINUTES OF THE FIRST SESSION.

The first session of the Section on Commercial Interests was called to order September 5, at 3 P.M. by the Chairman, R. S. Lehman, of New York City.

In the absence of Secretary J. G. McGee, of Jackson, Miss., the Chairman appointed P. H. Utech, of Meadville, Pa., secretary *pro tem.*, who presided while Chairman R. S. Lehman read his address which follows:

THE CHAIRMAN'S ADDRESS.

It affords me great pleasure to greet you, and bid you welcome to the session of the Section on Commercial Interests of the American Pharmaceutical Association.

After a twelvemonth of stirring and serious happenings in the world's history, we are again assembled to deliberate upon and discuss the commercial side of our beloved profession, Pharmacy. The past year has been especially important to the pharmacist, as the great conflict which has been raging with unabated fury on the other side of the Atlantic, has affected the commercial phase of our profession very greatly, probably more than any other industry.

The war has opened the eyes of the country to the fact that, in the line of chemistry, it is certainly dependent to a great degree, upon the ingeniousness of foreign experts, not only for chemicals which are protected by trademarks, or by patent rights, but also for such products, mainly of synthetic nature, the manufacture of which require complicated processes.

Such chemicals as acetphenetidin, antipyrin, salol, resorcinol, etc., the patents on which have expired for over 15 years, seem to be unsurmountable problems to our chemists, for in spite of the temptation of the present high prices, they seem to be unable to produce them. In some cases the advance in price since the beginning of the war has been as high as from 2000 to 3000 percent, as the following selection of the most striking examples will indicate:

	1913	1916
Antipyrin	$3.00 a pound	$32.00 a pound
Acetphenetidin	.98 a pound	38.00 a pound
Acid benzoic	.38 a pound	9.00 a pound
Acid salicylic (*ex phenol*)	.36 a pound	2.50 a pound
Atropine sulphate	8.00 an ounce	73.60 an ounce
Beta naphthol	.08 an ounce	.30 an ounce
Caffein	.25 an ounce	1.10 an ounce
Creosote (Beechwood)	.80 a pound	5.60 a pound
Creosote carbonate	.15 an ounce	1.10 an ounce
Guaiacol (liquid)	.17 an ounce	1.32 an ounce
Guaiacol carbonate	.21 an ounce	1.85 an ounce
Pilocarpine hydrochloride	3.64 an ounce	21.00 an ounce
Resorcinol	1.07 a pound	24.00 a pound
Salol	.93 a pound	4.20 a pound
Sodium benzoate	.35 a pound	5.00 a pound
Sparteine sulphate	.50 an ounce	3.20 an ounce
Sulfonethylmethane	5.16 a pound	12.00 a pound
Sulfonmethane	2.92 a pound	9.00 a pound
Theobromine and sodium salicylate	.45 an ounce	1.20 an ounce
Thymol	.18 an ounce	.80 an ounce
Thymol iodide	.27 an ounce	.78 an ounce

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* Papers with discussion of the subjects will be printed apart from the minutes, hence only the title of the paper will be mentioned in the minutes.

Some of the goods are not obtainable in any but small quantities at the prices named. In fact, during the year 1915 prices were at even a higher level, owing no doubt to the hoarding of stocks by speculators.

The present range of prices seems to indicate that our chemists have made little progress in the pharmaceutical end of their profession, or have heedlessly permitted the European, in especial, the German manufacturer to get a strangle hold on the synthetic chemical industry. However, there are evidences of an earnest effort to create a permanent dye-stuff industry by means of that typically American instrument, the Protective Tariff, which has stood us in good stead so often, and it is to be hoped that pharmaceutical chemistry will derive some benefit therefrom. Still, great strides will have to be made before the war comes to an end, for we will otherwise be at a disadvantage, having to pay higher prices for inferior goods, until such a time when our native chemists will have been able to equal the product of the European.

Also in regard to botanical products, the indifference of our farmers, or the lack of ability to compete, is now bearing fruit, inasmuch as such drugs of vegetable origin as are native to this country, or could easily be naturalized here, are not being produced in any appreciable quantities, but our profession is dependent upon old stocks at enhanced prices, or must search the globe to gather up inferior products, simply on account of the indolence of former days, or absence of encouragement to produce these valuable drugs.

There has also been some speculation by parties outside of the pharmaceutical profession, caused mainly by high prices incidental to increased export demand, but on the whole, the advance has been caused by real shortage, and the speculators have not made fortunes out of their transactions, but in many cases were caught in the flurry of high prices in 1915, and were later obliged to sell at a loss. Besides, the manufacturers and importers have done much to prevent the buying of large quantities of their goods by jobbers and dealers, by doling out small portions, or selling only to the retail dealers in such quantities as would fill their immediate requirements.

However, the hardships enumerated have not been an unmixed detriment to the individual pharmacist, for it forced him to become alive to the conditions of his business. Instead, as in former days, of paying little attention to the prices of the products entering the manufacture of galenical preparations, or that formed part of the prescriptions put up by him, he has had to adopt business tactics, and watch the market, taking advantage of every turn, laying in stocks, when possible, of such goods as might possibly become scarce or might disappear altogether from the market.

Another phase of these extraordinary conditions has been of considerable pecuniary advantage to the pharmacist, and that is the fact that the public has been trained to accept the advanced prices of all sorts of commodities as a matter of course, and it has therefore paid higher prices for prescriptions without much comment, which fact has been of considerable benefit to the enterprising pharmacist, who was farseeing enough or had the good fortune to buy good quantities of the necessary drugs and chemicals at the beginning of the war, when prices were still comparatively low, and had not reached the high levels they now occupy. Of course, in most cases, the increased stocks have by this time been exhausted, and profits are again normal.

In proprietary articles, there has been no noticeable advance in prices, most of the manufacturers having shouldered the loss caused by the increased cost of materials, and most of the firms even paying the war tax, or emergency stamp duty on the toilet articles or perfumery manufactured by them. As the revenues of the country are apparently becoming sufficient to supply its financial needs, there is a possibility of the stamp tax, so far as it applies to the goods sold by druggists, being dropped at the end of the present year.

The commercial awakening has stirred the pharmacist in other ways, and he is now paying more attention to the proper commercial methods in the conduct of his business and profession. Many colleges of pharmacy are taking up training of their students in commercial system and accounting, and even the Government of the United States is looking into the training of small business men in a way that concerns the pharmacist to a great extent. The Federal Trade Commission, under the chairmanship of Joseph E. Davies, and vice-chairmanship of

Edward N. Hurley, is investigating the business methods of the smaller manufacturers and tradespeople of the country, in order to discover the defects in the system, or lack of system in conducting their respective business enterprises. It will endeavor to help all those requiring instruction, in various ways, and hopes to reach the desired end by encouraging improvements in accounting practice, by endorsing standard systems of bookkeeping and cost accounting, and by assisting in devising standard systems, either at the request of individual merchants and manufacturers or through the association representing the industry. It expects in this manner to help individual enterprises and benefit employes, investors and the public. In European countries, manufacturers and merchants, aided by their governments, have developed a high state of efficiency, which enables them to sell their goods in the markets of the world. It is to be hoped that the pharmacist will take advantage of the United States Government's offer to assist in improving his business methods.

Great efforts have been made during the past year, by almost all lines of business handling proprietary or branded articles of commerce, to have a uniform price law passed by Congress, and one measure, the Stephens-Ashurst bill, has been introduced, and is now in committee. The interests in favor of the bill had a hearing in Washington on May 30 before the House Committee on Commerce under the chairmanship of Judge Adamson, the members of which gave much interested attention to the various arguments in favor of the bill, and interrogated the speakers on all points. It was hoped that some progress would be made before Congress adjourns, but as there is so much of national importance before that body, the prospects are that the bill will be obliged to lay over for consideration at a future session. The passage of such a measure as the Stephens-Ashurst bill would be of great benefit to pharmacists, as a reasonable profit on branded goods will make possible an equalization of profits on other lines carried in the drug stores, and it is only just that goods, the wholesale prices of which are protected by the patent laws, should have a similar protection as far as the retail prices are concerned.

It is to be hoped that there will be a general movement among retail pharmacists to recognize the fact that improved business methods prevent waste and eventual failure, and tend to elevate the standards of commercial life, thus benefiting the proprietor, his employes and the public.

On motion of C. H. LaWall, duly seconded, the Chairman's address was received and referred to the Publication Committee.

A paper entitled, "What is Wrong With the Business End of Pharmacy?" was then presented by Jacob Diner, of New York. The paper was discussed and referred to the Publication Committee.

J. Thomas Lyons, Advertising Manager of the Baltimore News, then addressed the Section on the subject of

ADVERTISING.

At one time I thought I was in a bad business, but when I went among my druggist friends and found out about theirs, I thanked my stars that I was not in that business myself.

Before we can come to any understanding regarding advertising, we must reach some conclusion as to what we mean by the word advertising. I have often been told, especially by large manufacturers, that they have been in business many years and have gone ahead each year, and yet they have never advertised in any way. I generally reply that it does not matter how long they have been in business, they have been advertising from the very first day. Every box of goods that leaves their shipping department or package that leaves their stores is an advertisement for them. The way they walk, the clothes they wear, the things they say, the way they treat their fellow-men, are all advertisements. Advertising is by no means confined to bill-boards, newspapers, street-cars, or any specific means; advertising is anything that attracts the attention of persons either to your business or to yourself, as its representative. If you could only realize that every waking minute you are advertising or misadvertising your business! The sooner you come to this conclusion, the sooner you will begin to cash in on honest advertising. I have seen many people who could have had a hair-cut for a quarter and charged it up to profitable advertising. I have seen many who could have had a manicure and charged it up to the same account. You should realize that every single instant you are doing something for or against your business.

What about the exterior of your place of business? Is there anything about it that is misadvertising your business? If there is anything there that is creating in the minds of the passers-by the idea that careless and slipshod methods might prevail within the walls of your store, go home and correct it, for you need favorable advertising on the exterior of your building more than anywhere about your place of business. The average druggist cannot afford to advertise in the newspaper, because he must pay for reaching its full circulation. I have known druggists who tried to build up a telephone business, but the cost of delivery killed the profits. You want your advertisements to reach especially those living in your immediate vicinity. For this reason, the show window is the most valuable spot to advertise in that the drug store possesses. It is the greatest advertising medium that you have.

Now I want to say that, for neighborhood drug stores, it is a very good idea to change the display in your windows every week, or even twice a week. I have seen many windows repainted, and the money spent charged up to profitable advertising, and many in which, if the dead flies had been removed in the summer time, it would have been good advertising. If you advertise, and a woman who reads your ad decides to come to your store, the chances are that she will stop and look in your window before going in, and if it cannot intensify the impression created by your advertisement, you have spent your money to make a customer for a competitor. Go back and look in your show window and see whether you could not increase your profits by a little intelligent thought directed to it.

How about the interior of your store? Have you ever gone into a tailor shop to buy clothes and, as soon as you had crossed the threshold, felt sorry that you had gone in? If so, this was because of what is called the store atmosphere, which is created by the things in the store and the people in it. There may be some things in your store that have been there for twenty years, or that you inherited from your wife's father who gave you the business, and it might be profitable advertising to get rid of them. If you will paint the store with white paint and charge it up to good advertising, you will do a good thing. It will pay you to go into one of the Evans stores in Philadelphia, and see what a wonderful merchandise man is at the head of it. There is hardly five dollars' worth of goods in the stock that does not appeal to you.

You say that you are almost put out of business by the big fellows, on account of their location and prices, but it is your own fault. Anyone who goes into the drug business needs the same kind of a store you have, and buys the same kind of stock. The battle of business is no longer fought by merchandise alone. It is the individual behind the merchandise that makes the difference between failure and success.

You must pay attention to your employes. I know of one druggist in Baltimore who is getting only about half the receipts from his soda business. One of the cutest little tricks to beat a cash register is practised in that store; I take my friends there, to show them how it is done. You are going to be successful with your help in proportion to the bigness of your brain. If you cannot build up the right kind of an organization, you will have no organization.

I am a newspaper man, and have never known a druggist to get an order through newspaper advertising unless he had a preparation so extremely superior that people would come a long distance for it. If any of you have a preparation of that kind, you want to get out of the drug business anyhow. I have been told that there are eighty thousand gallons of a certain soda fountain syrup consumed every day. If I found that three thousand dollars was spent every day for some certain drink, I would try to find out the best way to dispense it. If you get it in five different places, it will taste different in each; I would try to have it served in such a way that it would taste best in mine so as to get the business and make money and when the people came in for the soda, would sell them cigars and other things.

The prescription business in the United States has fallen off forty percent in the last few years, due to Christian Science, Osteopathy and the fact that people are getting wise as to how to live; and the doctors prescribing medicines now are not the good fellows that we once thought them to be.

The drug stores have cut prices, and there has been a price cutting that is terrific. Competition is not the life of trade, but the death of it. You fellows who try to beat each other in prices will follow each other to the poorhouse, and it is a question as to who gets there first. If you sell two tubes of shaving cream for the price of one, you have clogged the channels of outlet. Each man has only one face. If you are wise you will get behind the Stevens Bill, and do what you can to stop this price cutting. You should go on record as demanding the passage of this bill. It is your right. If you do not get it, you will feel the bad effects in a few years.

If I were in the drug business, I would try to find out the birthday of the various doctors in my vicinity; and when these came around, I would send the doctors a birthday postal. Every time the 'phone rang and a voice asked me to send for Mrs. Brown, I would convey the call on a card bearing an advertisement of the store.

A few years ago I advertised an invalid chair for rent, and was astonished at the response I got from people who wanted to rent it for a day or a week. If I were in the drug business, I would have an invalid chair, and lend it. The average family has no use for such a chair regularly, and you could cash the cost in good will. The average business man spends money in advertising to get people into his store, but it does not cost much to keep postage stamps and sell them. They now have a slot machine from which people can get two stamps for a nickel. Why don't you have one? People are willing to spend the extra penny for the service. There is only one live drug store in Atlantic City where they sell stamps and they have a sign up that says, "Stamps Here." That is good advertising; but the proprietor should make the people go to the back of the store to get the stamps and thus force them to see the display tables on their way out.

I never knew a successful druggist who lived over his own store. He should live away from it. If you cannot do anything else, rent your apartment over your store to another druggist, and you take his. The disadvantage of living over your store is this (the downtown price-cutters do not need any advice but the little neighborhood fellows do): If you live over your store, your wife and children have got to be subservient to your trade. If they are not, you lose business, and it is not fair to them.

If you and I were to get together and have a talk, I know that you would say, "Lyons, I am in an awful location. If I were where Bill Smith is, it would be different." Every man is in the wrong place according to his way of thinking. Let me tell you something. Did you ever stop to think that nearly all the automobiles come from Detroit, or near there? Now Detroit is not any nearer to the source of supply than any other city; yet Michigan dominates the manufacture of automobiles because the men there are big enough to dominate. Shoes are nearly all made in New England. Hides are shipped from the West to Boston, manufactured into shoes, and shipped back again. This is because the men in the business there are big enough to dominate the shoe trade. The retail shoe dealers do not want to sell button shoes, because they so often have to move the buttons, but the men who control the machinery to manufacture button shoes have demanded that these be insisted on as stylish, and they are big enough to do it. If conditions in your home town are not what you think they ought to be, the only men to be blamed are the men in the drug business in your town. You cannot get them to admit this, however. There is a fellow in your town that you have not spoken to for ten years, and you and he cannot get together. The druggist is not a good business man. As compared with others he is not the good business man he should be. You must coöperate, you say, "Coöperation is a theory, and does not exist." Let us see. You came down here at the rate of two cents and a half a mile, on a train that costs five dollars to run it a mile. This was due to the coöperation of your fellow passengers. You say, "That is theory; get down to facts." All right. Seven years ago, a milkman came to see me and said, "Do you know that there has been introduced into the legislature a bill to compel the dairies to pasteurize milk? We have no money to fight it; the newspapers have said nothing about it, but the real motive behind the measure is to throw the business of Baltimore into the hands of three large dairies and create a monopoly." The next Monday, I went to the Hopkins Laboratory and made some inquiries, and was told that pure milk was more likely to be had from the small milk dealers than from the larger concerns. I met the milk-trains, and lined up the milkmen and I said to them, "If you get together you can kill the bill." They did get together, with the result that when this bill was called, the vote in the legislature showed that there was not a politician there who dared to go on record as in favor of it. This was because for three months, through the papers, we had been telling the people about the milk bill. The little man who came to me about this legislation is still in the milk business and the last I heard was that he had been a member of a conference for the purpose of trying to raise prices.

The Electric Company formerly gave away electric light bulbs, causing dealers to loose the sale of them. I organized the electrical men; and to-day you cannot get free bulbs from the Electrical Company.

We had trouble with the feed business. The man giving the lowest estimate would give the lowest grade and short weight to make a profit. Therefore, we had a law passed to regulate the price of feed. Three years ago, I was invited to speak at a banquet of the Maryland Association of Optometrists. They spoke of bad business conditions. When my turn to speak came, I said, "If these conditions exist you ought to be ashamed to allow them to exist. If crooked men advertise solid gold frames for eighty-five cents and, when a woman comes in to buy glasses they tell her that in three months she is going to be blind and send her home to sell her furniture, so as to buy their glasses, you should kick them out of the organization. Go to the newspapers with clean hands, and I think that Maryland will correct this condition of affairs. We had a law passed that demanded a license by examination before a State Board of Optometrists. This is all due to coöperation, and anyone who says that coöperation does not exist or is impracticable is deficient in judgment. When a man gets old, he thinks of things in the past; and how terrible it is to be haunted by things which were wrong, and how good to recall the kind words and friendly acts done in the health and strength of youth. I trust that you will have the heritage of well-doing.

A rising vote of thanks was given Mr. Lyons and the address referred to the Publication Committee.

The following papers were then read, discussed and referred to the Publication Committee: "A Novel Method of Advertising a Drug Store," by Franklin M. Apple. "A Moving Window Display (a demonstration)," by Otto Raubenheimer. The following papers were presented by title in the absence of the authors: "System and Vigilance—the Great Essentials in Business," by Louis Schulze. "Whither Are We Drifting?" by Gus. Kendall. "Commercial Pharmacy and Side-lines," by A. S. Coody.

NOMINATIONS OF OFFICERS.

P. Henry Utech was nominated for chairman of the Section and R. P. Fischelis for secretary, further nominations were deferred to next session.

The first session was adjourned at 4.20 P.M.

SECOND SESSION.

The second session of the Section on Commercial Interests was convened by Chairman R. S. Lehman at 2.50 P.M., September 6.

The first subject of the program was an address by Homer S. Pace, of New York, who spoke on "Education as It Applies to Pharmacy," in part as follows:

I presume you are not at all unfamiliar with the move that has been in progress for several years to introduce in the curricula in several schools of pharmacy courses of study with the purpose of training the students in an academic way for business. You are familiar with the commercial high schools and you are no doubt aware of the introduction of schools for training in business demonstration. The point is that the movement for this kind of education is new, the methods and courses of study are only in the process of evolution.

So far as my observation goes pharmacy is about the first of the professions to recognize this movement. The lawyers have not added a study of business conduct to their professional courses, although the lawyer presumably is frequently called upon to advise the business man. The engineers are just starting a training course of this kind in a number of the technical schools of this country, so it is a matter of congratulation, it seems to me, or should be to the pharmacist that the profession of pharmacy is perhaps the earliest of the regular professions in the country to recognize that something can be done in the way of giving theoretical training for business, and not depending on the apprenticeship method.

The pharmacist, it seems to me, covers a wider range in activities than any other vocation of which I have knowledge, I know of nothing on the face of the earth, unless it is housekeeping, that is as broad and requires a person to change as many times, and over so wide a range of subjects. In working out a course of study, we endeavor to take into account the conditions as they exist, the facts as they are, and we have tried to consider the elements of success and what has proved successful by men who have made successes in this very difficult line of professional and retail merchandising work.

I want to dwell just briefly on the two points included in my subject. First ability, there are a great many specific contacts that a man has with business. He must specifically buy things, he must send his orders for goods and must receive goods, he must approve bills, and he must draw checks, he must receive cash from customers and must deposit the cash. Those are two or three of the stable things we most frequently associate with business conduct. But those things alone, even though they are well handled, do not insure commercial success to the proprietor pharmacist; not by any means. Bookkeeping does not insure business success. If that were true many a successful man who has kept no more books than he could keep on his cuff or thumb nail, would not have succeeded. And it is so with specific methods of ordering, with specific methods of receiving goods, and with specific methods of taking care of the cash. You can do business if you keep it all in the till and do not deposit a cent of it. Those are not the fundamental matters that lead to business success. There is something supplementary to that, and so in going over the surface of these varied business contacts that we associate with the commercial side of pharmacy we get back to something else that is more fundamental and more vital.

If we look for the thing that brings about success in any kind of commercial endeavor we have a number of things we can look to. A man is industrious, you say. You are looking for his success. You are apt to say he is successful because he is industrious, but industry does not spell success in business, as you well know, because you have known men who are very industrious but do not succeed. It is a necessary element but it is not the vital one.

A man cannot hope to succeed unless he is honest but honesty alone will not bring commercial success. When we try to differentiate between successful and unsuccessful men, we find that the former has and the other lacks in good business judgment or common sense. Inasmuch as we want to give our students some of the grounding that will lead them to commercial success, we want to do what we can to train a man to a point where he will exercise good business judgment.

You will perhaps say if a man has not common sense you cannot do anything with him, and in a general way that is true. Nevertheless, when we study this matter of exercising business judgment and run it down we come to the conclusion it is merely the ability to take a set of circumstances or facts, taking them all into account, and arrive at a judgment based on all those facts. So when we say a man has good business judgment, we are really saying that this man will weigh certain facts and will render a correct decision. If it is a question of buying stock, materials, or whatever other thing, the price of which is likely to advance in view of certain conditions, for example, he has to take into account whether the stock will deteriorate, the adequate supply, the possibility of over-stocking, etc. He must take into account his capital and credit, and in passing judgment, he buys or does not buy.

If he is going to establish another department in his pharmacy or is considering the establishment of it, he must take into consideration the departments already in operation, the effect of the new department upon the others, his capital and credit. He must consider whether there is some service that he is paying for in the way of salaries not fully utilized, and may be available in the contemplated department, whether or not he will possibly run that department for a year or two at a loss, or whether he could afford to run it at a loss for its beneficial effect on the other departments. These are questions he must decide with good judgment.

Business is made up of a succession of these business judgments, ten, fifteen, twenty, thirty, fifty or a hundred a day. And a man's success in business or any kind of undertaking will depend upon his capacity for forming correct business judgments. We must teach our students to arrive at some conclusions and to pass good business judgment. If we only teach the writing of letters, the keeping of the accounts, the ordering of goods, and do not associate this study with something that is bigger and more fundamental, we can only hope to turn out bookkeepers, or young men who are more or less skilled in those things in which they may become proficient by taking any commercial course. We must do more than teach the student to handle the cash, to post an account, to take an inventory, and make business records, his business capacity must be developed by cultivating his business judgment.

In our course we tell the story of business and of organized business in a reasonable common sense way. Beginning with a study of business organization we consider capital and the kinds of capital, the variety and quality of assets, the problems of buying and selling and the distinctive bases of trading, wholesaling, retailing, jobbing and so forth. We illustrate each point specifically so that when we come to taking inventories we give the principle of valuation with the prices. When we talk about capital or the various kinds of capital we illustrate it with the assets and recording of the assets, giving a logical connected story as we proceed so that the student may recognize and grasp the logical sequence. For instance, we begin with the fundamentals of business organization. There are only three kinds of business organizations. A man may by his legal right engage in business for himself and he is a sole proprietor or sole trader. Any article he gets he pays for. Presumably he employs somebody and agrees to pay for the service, if there is any profit he takes it, and that we call sole proprietorship.

If a man wishes to associate another person with him and bring in capital, help or skill in that way, he organizes a partnership and he can increase the capital or buying credit. He may organize a corporation, a legal form of business organization created by the statute, the object of which may be to secure more capital or retain the co-operation of somebody whom he cannot employ on a wage or salary basis or he may change from the partnership to corporation to lessen individual liability. Partnership form is limited to the partners and there must be a checking up and adjustment upon the death of either party; a corporation continues and the inconveniences of a partnership, in such event, are avoided.

Capital is the part of the wealth that is set aside for the purpose of creating additional wealth. We have cash in hand, stock of merchandise and possibly real estate, but the stock is what we work with, we turn over. I consider stock in two divisions, permanent capital, part of that is fixtures and building, to which one set of principles apply in valuation, and then the other is the current stock that is constantly changing, nothing to do with the latter except to sell it and realize on it, bring it down to a cash basis and we keep turning it over and over. The permanent investment is worth all you pay for it, subject to the wear and tear and other depreciation, if you sell it you would merely buy some other plant. The stock in hand is different, other principles apply because you buy that for the purpose of selling it; if the market goes down you must follow the market, but if prices go up, it is best not to follow the market but inventory the goods at the cost price regardless of the upward trend, for the reason that a downward market may catch you before you realize on the prior advance. It is a whole lot better not to consider a theoretical profit than to delude yourself in advance of realization. That is all common sense accounting, fundamental business which we teach, and the students grasp the thought without very much trouble.

There are only two classes of people interested in the fund of values, you and the people you owe—the latter have a prior lien—and whatever you have left, you own, that is an investment. You have a thousand dollars, in assets and the liabilities are two hundred, your interest is eight hundred and that is where we get the mysterious double entry principle. There are only two classes of people interested in everything. We explain the theory of double entry at that point in the course, so the young men will be able to at least open and close a double entry set of books. We determine the profit of a business in the simplest way, say we had a thousand dollars value at the beginning of the year, two thousand at the end of the year, if we have not inherited anything, put in any other money into the business or drawn out any, then we are just that much better off. Here we show the effect of the inventory and so on.

We give particular attention to those things that are of every day occurrence in the pharmacy, for example the handling of cash. Cash is a most dangerous asset. From an accounting viewpoint it is a dangerous asset because it is easily convertible, it can be stolen or transferred. A stolen horse with a big white and black mark on it is a little more difficult to get rid of than a yellow back twenty-dollar bill, because the former must be converted in some way, so an extra precaution is necessary. A person receiving cash should give a receipt, and when you are turning over cash you should always take a receipt, give a receipt for what you get and one for what you turn over. You cannot blame anyone in particular, if you mix up the cash with three or four going into the same drawer. So it must be a personal matter. Responsibility for cash is always a personal matter. We describe the different methods of handling cash.

The bank account. Every dollar of money that comes into the pharmacy should be deposited daily for the preceding business day so that the bank account will show the receipts of the pharmacy. If you receive cash and pay out of the same fund or allow anybody to do it, you tie up in the one person the right to receive and pay it out and the transaction is, don't you see, without record. If you must pay out money in cash, a fund should be established say of $25 for that purpose and when it is reduced a check should be drawn on the bank to bring that fund up to the given amount. I have been in one or two merchandising places where we could not spare that much capital at one time, but whatever amount can be spared for this fund, it will prevent confusion in the regular transactions of the store.

So also there is an essence of quality in ordering. Orders are a record of some kind, even though given orally, there must be a system for following up those orders, checking up the bill, etc., but there is also a quality in doing those things aside from the technical qualities, just as essential in properly keeping up stock and we impress that all the time, using the principles of judgment. In the teaching we unfold our story which begins at the bottom and we fill in all these specific matters to retain the interest of the student, to make him immediately useful when he is through with his course, but the study is founded on the essentials of applying judgment in every part of business conduct.

The result is that after a year's time our men are thoroughly well grounded in the fundamental principles of organization, fundamental organic principles so far as they apply to these retail propositions, and are sound in the theory of valuing assets for inventory or other purposes. They know what they must do with obsolete stock, or stock that is out of date. They know what they should do to avoid accumulation of such stock. The question is brought up in the study of the inventory, and they will be able to know what to do when they put the principles into practice when they enter business. You cannot turn any boy out of school and put a business head on him. But we give them the training or knowledge so that when a proposition of this kind is put up to him, he can give the right answer, whereas without the benefit of the fundamental laws and principles it would take a man surely three or four times as long to acquire this information in actual business experience.

We do not forget the human side of the proposition. I do not know of any set of conditions or circumstances within my own range of knowledge of business organization that is more calculated to wear on the nerves and to test the patience of a person than the work of a pharmacist. It is because of the range that I spoke about at the beginning that requires at one moment technical dealing and changing from the handling of one item to another, involving detail as well as the simplest merchandise operations. So we take that into consideration in dealing with the technical business studies. A man spoke about this in Philadelphia the other day, he said the whole proposition was a service to the public. That is true, any work which is dependent upon contact with the public implies service. The study of salesmanship presents many problems and we give special care to the subject because we realize that the students are to meet the public under extremely trying circumstances. It is one thing to meet the public say, in standing back of a ticket window selling five-cent tube tickets or something of that kind; the same tickets for the same number of hours, day after day and week after week. Such service tries patience in one way. It is quite different, however, from attending to the ever varying duties of the drug store, and making all kinds of sales and retain your patience. We endeavor to teach the student that courtesy, unfailing good manners, and the soft answer or the holding back of the quick retort are essential to holding trade and a valuable part of the service they are to render, perhaps the most essential part of successful business conduct; we endeavor to inculcate those principles while instructing the students in the fundamentals of salesmanship.

I do not underestimate the strictly professional part of the work of the pharmacist, but I know on the other hand that the pharmacist usually sells merchandise, and I know there is no dispensation which relieves him from the principles that apply to successful salesmanship that do not also apply to the man across the corner who is dealing in the same or other lines of merchandise. Therefore I reason out that we must give some attention to the fundamental principles of selling and display. We do not try to run a school of salesmanship, but we teach the essentials and fundamentals by reasoning and the application of judgment. We impress the value of courtesy, the intent of being of service, as a part of the sale transaction, how the customer must be stimulated to buy certain goods; that attraction, the drawing of attention is very essential for increasing sales volume, as exhibited in department stores. The same principles run all the way through and apply to the pharmacy just as they do to the department store; those things that attract are put in the front of the store. We teach the value of the attractive display as an influential part of making sales so that the students may utilize this knowledge after graduation.

So that is the method we have planned to cover in this course of study. We teach business organization and business conduct with due consideration of every detail whether pertaining to buying or selling always keeping in mind the development of judgment.

I firmly believe that this system of teaching will develop pharmacists who will exercise sound business judgment and they will not be quite so dependent on natural ability. I think we are doing that without commercializing any part of the course of study. Instead I think, we are dignifying a commercial part of the drug business because we are showing that therein are principles just as true, just as dignified and just as important to the human race as the principles that underlie any science, profession, trade or vocation. I thank you very much. (Applause.)

ABSTRACT OF DISCUSSION.

HARRY B. MASON: I have contended for years that colleges of pharmacy ought to devote more time in a course of accounting and salesmanship. I believe that it is the duty of a college of pharmacy to train their students in salesmanship as pharmacists, and a college that is neglectful in this does not train its students properly. I believe that nearly one-half of the time of a course in a college of pharmacy should be given over to business subjects. Under present conditions, only about 10 percent of the time is devoted to commercial training.

WILLIAM E. DANHAUER: Mr. Pace by some of his remarks indicated that business training would detract from the professional side of pharmacy. I differ in this view; in the course of training that he has described he is training the minds of the students. The teaching of professional pharmacy is also largely a training of the mind. And by this training the intelligent mind is directed to arrive at the right judgment. I was talking to a gentleman last night who was formerly connected with a large manufacturing concern. He had devised a set of books according to a system of his own. Some time afterwards, he investigated another system and found that this was developed along the lines of his own, showing that a training of the mind leads to the same conclusions. I am strongly impressed with the need of training, whether related to the commercial or professional side of pharmacy.

P. HENRY UTECH: I was speaking to a teacher of a large school of pharmacy who said that students came to the college for the purpose of securing a pharmaceutical education and, from his viewpoint, the injection of this element of commercial training was open to the criticism that the students came here to be instructed in the science and art of pharmacy and not to become expert accountants. The knowledge and practice in business management should be obtained elsewhere.

CHARLES HOLZHAUER: It is a fact, nevertheless, that 10 percent of the pharmacy students never get their commercial training unless they have such opportunities in a college of pharmacy. It certainly seems to me very desirable that students should be prepared in the college for their business life.

CHARLES H. LA WALL: The Philadelphia College of Pharmacy, sixteen years ago inaugurated a business course under the direction of Mr. Frank G. Ryan, who is now head of Parke, Davis & Co. Since that time the course has been continued and considerably over one hundred hours are given over to that course, which includes the subjects of accounting, bookkeeping, business forms of all kinds, etc. In addition we annually have a course of special lectures; quite a number of them are on subjects relating to business management and salesmanship. The subjects of the addresses also have included a study of the various sundry items and their display, window dressing and in fact practically everything that comes up in the successful management of a drug store. I do not think that Mr. Mason was serious in his remarks that 40 percent of the time in a pharmaceutical course should be given over to business training, but I do not want to minimize the value of commercial training in a school of pharmacy.

HARRY B. MASON: I was perfectly serious in my references to the number of hours that should be devoted to commercial training. It is quite as important that the business in which the student in pharmacy engages after graduation shall be conducted wisely, for his own success as for public health. The lack of success of many druggists is due to the fact that opportunities were not given them to obtain necessary business information while at college. If the students do not receive such education there, it will be quite difficult for them, or at least, they will much more slowly acquire the necessary business information.

R. P. FISCHELIS: I think Mr. Mason loses sight of the fact that the pharmacy laws require a knowledge of pharmacy and the time given over in schools of pharmacy is not sufficient for a thorough and complete business course. If that is desired the young man should attend a business college. The technical course in a college of pharmacy cannot be subordinated to the commercial, although I fully realize the importance of such training.

OTTO RAUBENHEIMER: It is very important that the colleges devote as much time as possible to business training but after all when the young man enters business he will find that experience is the great teacher. He will be required to pay for his experience the same as all of us here have had to pay for it. While he may profit by the experience of others most of these lessons will be best impressed through his individual experience.

The following papers were then read, discussed and referred to the Publication Committee: "Photography as One of the Profitable Side-lines of the Pharmacist," by Emil Roller. "Jeopardizing the Pharmacist's Reputation for Fair Dealing," by R. P. Fischelis. "History of Substitution and *Quid pro Quo* in U. S. P. IX," by Otto Raubenheimer. The two papers constituted part of a symposium on Substitution. Considerable discussion was had and several of the contributors made verbal presentations of their contribution to the symposium. The discussions will follow the papers when printed.

The following papers owing to the absence of the authors were read by title and referred to the Publication Committee: "A Couple of Time Savers for Retail Druggists," by David M. Fletcher. "An Appeal to the Retail Druggists to Take a Greater Interest in the U. S. P. and N. F. Preparations," by Zeb M. Rike.

The following further nominations were made for officers of the Section, namely, as associates: A. H. Ackerman, of Lynn, Mass.; D. K. Sass, Chicago, and J. H. Webster, of Detroit. The election resulted in the above named and P. Henry Utech, of Meadville, Pa., as chairman, and Robert P. Fischelis, of Philadelphia, for secretary.

Chairman-elect Utech stated that he had not sought the office but would discharge the duties to the best of his ability. He asked for the coöperation of the members and thanked the Section for the honor conferred.

The Section on Commercial Interests adjourned.

SECTION ON EDUCATION AND LEGISLATION, AMERICAN PHARMACEUTICAL ASSOCIATION.

MINUTES OF THE SECOND SESSION.*

The second session of the Section on Education and Legislation was called to order at 3 P.M., September 6, by Chairman F. H. Freericks. The first paper presented was by Leonard A. Seltzer on "Classification of Registration in Pharmacy."[1]

A paper by B. E. Pritchard entitled "Concerning Three Cardinal Points in Pharmacy," was read, discussed and referred to the Publication Committee. A paper by John A. Leverty on "Publication of Potent Drug Content in All Ready-Made Medicines," was read, but discussion thereon deferred to the next session and in connection with an allied paper by E. L. Newcomb. The next paper was by Louis Emanuel, entitled "Ethical Proprietaries(?) A Protest." Discussion was withheld until after the report of the Joint Committee on Definition of a Proprietary Medicine was read, for the reason that some of the points involved were related.

ETHICAL PROPRIETARIES(?). A PROTEST TO SUCH CLASSIFICATION.

BY LOUIS EMANUEL.

The report of the A. Ph. A. Commission on Proprietary Medicines, presented at the San Francisco meeting is quite comprehensive, and contains practical elements for the elimination of quackery in proprietary medicines, a consummation much desired by the original fathers of this Association. The report, if properly acted upon should lead the way towards a legalized standardization of proprietary medicines.

However, I have a fault to find with the report, and that is regarding the classification of certain proprietary medicines as "ethical proprietaries." In this, it appears, the Commission has followed the lead of the American Medical Association, which classifies proprietary medicines as "ethical" and "non-ethical" according to the manner of their exploitation. The former are considered "ethical" because they are exploited exclusively to the medical profession, the latter are regarded as "non-ethical" because they are exploited to the public. When an ethical proprietary is exploited to the public, it falls from grace, and becomes non-ethical, according to the rule of the A. M. A. This seems absurd, for a medicine that is properly classed as ethical, should have such features as to deserve the classification, and thus retain the exalted position.

The Standard Dictionary defines the term "ethics" as "The science of human duty,"—"The basic principles of right action."

The manufacture of proprietary medicines is not entered into as a duty to humanity, nor is it based on the principles of right action. The incentive that prompts their manufacture and exploitation is a monopoly, and an extraordinary financial return.

The purpose of the United States Pharmacopœia and the National Formulary is to establish a uniform standard of quality and purity, in such form and manner as to be available to all pharmacists, thus no monopoly may be maintained, and the art of compounding medicines is universally preserved in order that the public may be served efficiently and economically. And this is in conformity with basic principles of right action, and as a duty to humanity, therefore, the term "ethical" as applied to medicines, should be restricted to U. S. P. and N. F. medicines.

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* Papers with discussion of the subjects will be printed apart from the minutes, hence only the titles of the papers will be mentioned in the minutes. As far as possible reports of committees will be included in the minutes. These minutes are continued from page 1242, November issue.

[1] This paper with discussion was printed in October number of the JOURNAL (pp. 1102–1107).

REPORT OF JOINT COMMITTEE ON DEFINITION OF A PROPRIETARY MEDICINE.

To the National Association of Boards of Pharmacy and the American Conference of Pharmaceutical Faculties:

In pursuance of action taken at the San Francisco meetings, in 1915, the following Joint Committee was appointed to consider and report upon a definition for a proprietary medicine.

Representing the National Association of Boards of Pharmacy: J. W. Gayle, Chairman, Frankfort, Ky.; Geo. C. Diekman, New York, N. Y.; F. C. Dodds, Springfield, Ill.

Representing the American Conference of Pharmaceutical Faculties: J. H. Beal, Chairman, Urbana, Ill.; L. E. Sayre, Lawrence, Kan.; Chas. Caspari, Jr., Baltimore, Md.

At the request of Mr. Gayle, J. H. Beal has acted as the Chairman of the Joint Committee.

The Committee has devoted consideration to the definitions submitted respectively by the Association of Boards of Pharmacy and by the Commission on Proprietary Medicines of the American Pharmaceutical Association.

The definition proposed by the Association of Boards of Pharmacy reads as follows:

"A Proprietary or Patent Medicine or remedy is one, the name of which does not appear in the United States Pharmacopœia or National Formulary, or the complete formula of which is not printed or otherwise plainly indicated on the label attached to the container."

The Joint Committee has decided adversely to the above proposed definition upon the following grounds:

1. The definition does not in any way deal with or touch upon the matter of proprietorship, which is an essential element in the definition of a proprietary medicine.

2. The definition would apply only to secret medicines, which constitute only one of the subdivisions of proprietary medicines.

3. According to the definition, a proprietary medicine would cease to be such whenever its formula is printed on the label, an evident impossibility.

4. There are hundreds of well-known proprietary medicines recognized as such by the courts and by the American Medical Association that are not recognized by either the U. S. P. or N. F. (See *New and Non-Official Remedies,* published by the American Medical Association.) The definition would make these well-known proprietary medicines non-proprietary.

5. The definition would include among proprietary medicines such biological products as small-pox vaccine, not recognized by the U. S. P. nor N. F. and the composition of which cannot be stated on the label for the reason that it is unknown.

6. The definition is not in harmony with any of the definitions of proprietary medicines accepted in the decisions of various American and English courts.

7. The definition is in conflict with the definitions for proprietary medicines as stated in standard medical and other dictionaries. (See *Appleton's New Medical Dictionary,* 1915, pages 518 and 588.)

The definition proposed by the Commission on Proprietary Medicines of the American Pharmaceutical Association reads as follows:

"A proprietary medicine is any drug, chemical or preparation, whether simple or compound, intended or recommended for the cure, treatment or prevention of disease, either of man or of lower animals, the exclusive right to the manufacture of which is assumed or claimed by some particular firm or individual, or which is protected against free competition as to name, character of product, composition or process of manufacture by secrecy, patent, copyright, trade-mark, or in any other manner."

The joint committee approves and recommends for adoption the foregoing definition for the following reasons:

1. It is in harmony with the definitions found in various legal and pharmaceutical authorities, both American and English.

2. The definition is in harmony with the definitions given by leading medical dictionaries and dictionaries of the English language.

3. The definition sets out fully the essential element of proprietorship, and is broad enough to include proprietary medicines of every class.

4. The definition is in substance practically the same as that which has been approved in various legal decisions, both in this country and in Great Britain. (See State vs. Donaldson, 41 Minn., 80–83.)

5. The definition is practically the same as that adopted by the American Medical Association, differing only in that the essential facts which constitute proprietorship are set forth with greater detail.

Respectfully submitted,

Representing the National Association of Boards of Pharmacy:

J. W. Gayle, *Chairman*,
Geo. C. Diekman,
F. C. Dodds.

Representing the American Conference of Pharmaceutical Faculties:

J. H. Beal, *Chairman*.
L. E. Sayre,
Chas. Caspari, Jr.

The above names are attached to the report in pursuance of written authority given to the Chairman of the Joint Committee.

J. H. Beal.

ABSTRACT OF DISCUSSION.

Jacob Diner: Mr. Emanuel stated that the American Medical Association, in their classification, differentiated between exploitation to the public and exploitation to the medical profession. If that were really so their classification would not be a sound one and could not exist for a minute, but I believe Mr. Emanuel left out of sight that beside exploitation other qualifications are necessary before a remedy is accepted by the American Medical Association. Not only must it not be exploited to the public, but claims made for efficacy and contents must be true. The claims must be in accordance with established facts, as far as they can be known or physiologically ascertained. That, I believe, puts a different interpretation on the classification as given by the American Medical Association. Now, Mr. Emanuel maintains in the title of his paper—by inference—that there is no such thing as an ethical proprietary. I do not need to state my position here. That is too well known. I am entirely opposed to the so-called nostrums.

Let us just for a moment consider some of the proprietaries which Mr. Emanuel would eliminate, I presume not only from ordinary use, but from any kind of use by the medical and pharmaceutical profession. I do not recall the time, but history records that quinine was a proprietary. It was within our recollection that aspirin was a proprietary, diphtheria antitoxin, and others too numerous to remember are still proprietaries. Do I understand that Mr. Emanuel would eliminate these because they are not in the United States Pharmacopœia or National Formulary? Is it not a fact that the new edition of the Pharmacopœia contains a number of remedies which not so long ago were proprietaries? And if we are to wait before we may use these things until the new edition of the Pharmacopœia comes out, which, as you know, is deferred longer and longer with each revision, many of these remedies will be forgotten and remain unused, many of which have proven and are proving themselves of value to the suffering patient. I do not believe that the pharmaceutical profession should limit the practitioner to the Pharmacopœia and the National Formulary.

M. I. Wilbert: I would like to point out that the Council has carefully refrained from the use of the word "ethical." It has never used the word "ethical," because the word does not apply. The Council differentiates between proprietaries that are acceptable and those that it deems are not acceptable for inclusion. That is as far as the Council goes. It measures these proprietaries by a "yard-stick," that was adopted some eleven years ago and was widely published. The Council, itself, so far has been the most active critic of this "yard-stick" or set of rules. I do not remember a single criticism that has come either from the retail druggist or the manufacturer. The manufacturers, after several conferences we have had with them, have adopted them, and have agreed that the rules are fair and equitable.

If these rules are fair and equitable, the position of the Council is unassailable. If the medicine does not size up to these rules, it is refused admission. If it does, it is admitted to the N. F. and gets a good deal of free advertising.

My interpretation of what the Commission on Proprietary Medicines has in mind is something equivalent to what the Council has already done. A patent medicine is either acceptable or not. To be acceptable it must measure up to a certain requisition that the Council outlined last year. Now, if a patent medicine measures up to these arbitrary rules, it is acceptable to the Commission on Proprietary Medicines. It is not "ethical." It is simply acceptable and I wish that this differentiation would be made between "ethical" and "acceptable." Ethical is altogether out of place in a differentiation of this kind. The Council has never used the title "ethical."

J. H. **Beal**: I believe Mr. Emanuel misread the report of the Commission on Proprietary Medicines last year, and I would like the privilege of reading these definitions which we propose. We were confronted with the question, What are the classes of medicines which are commonly called "proprietary?" What are the classes of medicines which are commonly known as patent medicines? Now, we knew, or believed, that the term "ethical" was misapplied, just as we believe the name, "patent medicine," was misapplied; but we were dealing with a situation where we called one shelf of medicines "ethical proprietaries" and another one patent medicines. What are the distinctions? In some cases I do not believe there are any distinctions.

Moral ethics and legal ethics and pharmaceutical ethics ought to be the same as moral ethics, or the rules which govern moral behavior.

Now, as to the title "ethical proprietaries," we do not endorse it at all; we simply take the classes which exist, and we are trying to express something which describes that class as we find it in the market, and our definitions of these so-named substances are as follows:

Proprietary Medicines Exploited in Accordance with the Requirements of Medical Ethics, or So-called "Ethical Proprietaries": Proprietary medicines, the active ingredients of which, with their proportions, are stated on the label or otherwise published, and which are not advertised to the general public, either through the public press, by accompanying circulars or in any other manner, and not accompanied by printed matter calculated to encourage their use by the laity without the advice of a physician.

"Proprietary Remedies Advertised Directly to the Public," or so-called "Patent Medicines": Proprietary medicines, whether of secret or open formula, which are advertised directly to the general public through newspapers, by circulars or in any other manner, and the packages of which are accompanied by printed matter specifying the affections, symptoms, or purposes for which the remedies are recommended, and directions for their use.*

Now, proprietaries can be divided along other lines. We divide horses into race horses, carriage horses, dray horses; and then there are white horses, black horses and bay horses; and these lines would cross each other—these various classes.

Now, the division or classification proposed by Dr. Emanuel is no doubt legitimate. As I understand it, this is a question of classification, but that is not what our Commission was trying to prove. We were trying to distinguish between two shelves of proprietaries, one of which was called "ethical" and the other "non-ethical." They are both patent medicines—both misnomers.

Now, frankly speaking, I think I am not betraying any secret of the Commission when I say that we regard many so-called ethical proprietaries as not a whit better than patent medicines, and we might as well step over on the other side and say that we know just as many patent medicines that are as efficacious and as decent and in accordance with the practices of medicine as are many of the so-called proprietaries that are known as "ethical." That is a subject on which we hope to make a report at some other time. But this was only intended to distinguish between those advertised in an ethical manner and those not advertised in an ethical manner.

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* The terms "ethical" and "non-ethical" as employed in this report are intended merely to distinguish between remedies exploited in accordance with the rules of medical ethics regarding the advertising of medicinal agents, and those advertised to the general public in contravention of such rules. The terms have been used for want of better, and are not to be understood as implying any idea of relative merit.

A motion made to refer Mr. Emanuel's paper to the Publication Committee was adopted.

A motion made to receive the report of the Committee and adopt the definition in the report was carried.

The report of the Committee on the Chairman's Address was next presented. This is printed in the October number, p. 1082. It was approved.

REPORT OF THE SPECIAL COMMITTEE ON REGULATIONS FOR TRANSPORTATION OF DRUGS BY MAIL.

It is still unlawful to send poisons through the mails. No change in the law has been made and no regulations affording relief have been promulgated since the time of this Committee's report at our last previous meeting a year ago.

The principal constructive move that has been made on this subject during the year originated with the National Association of Manufacturers of Medicinal Products. At the time of the annual meeting of that Association in February it was decided to take action tending to relieve the situation relative to the mailing of poisons. This bore fruit in August when there was introduced in Congress what has become known as the Kern-Doremus bill. It seeks to amend the U. S. Criminal Code in such a way that all poisons and compositions containing poisons may be mailed under proper restrictions and when properly safeguarded. The bill is comprehensive, affording relief not alone to the drug trade, but to every branch of art, science and industry. A copy of the bill as issued by the above Association is attached to this report.

The bill will be considered by Congress somewhat later, probably in December, but we should consider it at the present meeting. The majority of the members of this Committee have expressed themselves favorably after studying the provisions of the bill. The Chairman has had outside legal opinion favorable to the bill and wishes at this time to have the American Pharmaceutical Association itself consider the advisability of endorsing it.

The report of our Committee is again a report of progress for reasons that are apparent, and as suggested last year it is felt that to be effective the Committee should be continued until the work is done and some measures of relief have been enacted.

Respectfully submitted,
B. L. Murray, *Chairman.*

The following bill to amend Section 217 of the United States Criminal Code was made part of the report:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Section 217 of the Criminal Code of the United States be amended so as to read as follows:

Sec. 217. All kinds of poisons and all articles and compositions containing poisons which are outwardly or of their own force dangerous or injurious to life, health or property; and all other poisons, and articles and compositions containing poisons so insecurely packaged as to endanger the mails or those handling them from leakage or breakage, all articles and compositions herein described that are not packaged and prepared for the mails in accordance with any regulations that may be made by the Postmaster-General for their preparation and packing; and all poisonous animals, insects, and reptiles, and explosives of all kinds, and inflammable materials, and infernal machines, and mechanical, chemical, or other devices or compositions which may ignite or explode, and all disease germs or scabs, and all other natural or artificial articles, compositions, or materials of whatever kind which may kill, or in any wise hurt, harm or injure another, or damage, deface, or otherwise injure the mails or other property, whether sealed as first-class matter or not and all spirituous, vinous, malted, fermented, or other intoxicating liquors of any kind are hereby declared to be non-mailable matter and shall not be conveyed in the mails or delivered from any post office or station thereof, nor by any letter carrier. Whoever shall knowingly deposit or cause to be deposited for mailing and delivering, or shall knowingly cause to be delivered according to the direction thereon, or at any place it is directed to be delivered by the person to whom it is addressed, anything declared by this section to be non-mailable; and if the Postmaster-General shall have prescribed rules and regulations as to the preparation and packing for the mails of poisons, substances and articles not outwardly or of their own force dangerous, then whoever shall knowingly deposit or cause to be deposited for mailing and delivery, or shall knowingly cause to be delivered according to the direction thereon, or at any place it is directed to be delivered by the person to whom it is addressed anything not prepared or packed according to such rules and regulations, though otherwise mailable as not outwardly and of its own force dangerous, shall be fined not more than one thousand dollars; or imprisoned not more than two years, or both; and whosoever shall knowingly deposit or cause to be deposited for mailing or delivery, or shall knowingly cause to be delivered by mail according to the direction thereon, or at any place to which it is directed to be delivered by the person to whom it is addressed any poison, explosive or other substance or article of whatsoever kind or nature, whether the same be prepared and packed according to rules and regulations prescribed by the Postmaster-General or not, with the design, intent or purpose to kill, or in any wise hurt, harm, or injure another, or damage, deface or otherwise injure the mails or other property, shall be fined not more than five thousand dollars, or imprisoned not more than ten years, or both; provided nothing herein contained shall be construed to permit the mailing of any poison, substance, article or matter the mailing of which or the introduction of which into interstate commerce is forbidden by some other law of the United States of America.

M. I. Wilbert: I move that we receive the report and endorse the spirit of the recommendation. Seconded by L. L. Walton.

(Mr. Wilbert explained his reason for making the motion by saying that the amendment would not secure the relief desired nor provide the necessary safeguards.)

The motion carried.

The report of the Commission on Proprietary Medicines was then read, and the two declarations therein adopted after a motion to receive the report, which was carried.

(The report is printed in this issue of the Journal.)

The Chairman: The next order of business is the report of the Voluntary Conference to Draft Modern Laws Pertaining to Pharmacy. I will ask Mr. Emanuel to preside while I read the report.

REPORT FOR THE VOLUNTARY CONFERENCE TO DRAFT MODERN LAWS PERTAINING TO PHARMACY.

Developments since the San Francisco Convention have made it evident that the work of the Voluntary Conference has suffered because of inability at that time to discuss proposed and other new features, which should properly find a place in Modern Laws pertaining to Pharmacy. Our inability to have such discussion at that time has prevented material progress in the work. It was first thought possible to continue with the preparation of a general outline and draft, based upon expressions from the Conference members and various state boards and state associations, but questions which arose and inquiries which were made on the part of some of those who had expressed their opinion in particular with reference to the eight (8) tentative provisions, seemed to indicate to your Chairman that they had found but insufficient consideration. From the very beginning it was understood that no effort should be made for the presentation of a complete draft of laws until after there might be a fairly general agreement upon the new provisions which should be found in a Modern Law. Such general agreement of necessity has to depend upon thorough understanding, and under no circumstances is action warranted which is shown to be based only on casual and hurried consideration. It is the very first essential that there be open, full and complete discussion of every new feature proposed as a part of Pharmacy Laws, before being finally advanced for that purpose. Failing to find time for opening such thorough discussion at the San Francisco meeting, and more fully realizing its need, it was hoped discussion would more generally take place at the subsequent meetings of the various state associations, and efforts along that line were made. However, in but few instances was it found possible to present at least the eight (8) tentative new provisions so as to bring out the needed exchange and difference of opinion, and therefore we are obliged to look for the needed complete, intelligent discussion and criticism at this convention. If a fair start can be made at this time with sufficient subsequent publicity we may soon hope to have, and to gather the best thought in pharmacy in all sections of the country pertaining thereto.

It is not meant to convey the impression that the work of the Voluntary Conference has failed to attract general attention, for quite the contrary is true, and comment has come from very many sources and has been very gratifying in that it so fully justifies the task which was undertaken. There seems general agreement that the pharmacy laws of nearly all of the states require added provisions and changes which more fully will suit present-day and future needs. As has been reported before, the eight (8) tentative new provisions, wherever considered, have met with almost invariable approval, excepting the prerequisite requirement, in states which do not believe themselves ready for it, and excepting isolated objection here and there to one or another of the provisions. In fact, all but one state, and that unfortunately the State of New York, have expressed the opinion that the eight (8) provisions or the intent as embodied therein would be acceptable, and your Chairman inclines to believe that in New York there was an insufficient understanding. At this point it possibly should be mentioned that here and there we have met with misunderstanding of the work as planned. Some few members of the Conference even seem to have had the fixed idea that its work would be completed within a few months and that the general draft of laws would then be submitted as a finished product. Such erroneous impression was held in face of the fact, that from the very first the work was spoken of to be the result of most thorough-going research and study. Others again, although but few comparatively, seem of the opinion, that when a final draft of Modern Laws is decided upon, that then every state is to be obliged to immediately adopt or try to adopt the entire draft, which, of course, is not the intent at all, since our work is merely to serve as a model, from which can be adapted all or a part as may be deemed expedient and necessary, though, of course, a complete adoption and adaption would be very desirable and can give the uniformity in pharmacy laws, which is so greatly needed.

In connection with the work of the Voluntary Conference a number of resolutions were presented to it by the National Association of Drug Clerks, and consideration was requested for such resolutions. The resolutions appeared in the June number of the *National Drug Clerk,* and at the request of your Chairman a copy of said resolutions as contained therein was submitted to every member of the Voluntary Conference, who in turn were requested to express their opinion regarding them. In their order the resolutions referred:

First, to the appointment of a National Commission under an Act of Congress, to investigate all activities with reference to pharmacy, evidently for the subsequent enactment of some form of National Pharmacy Law.

Second, to a general requirement for the prerequisite.

Third, to the need for defining a drug store.

Fourth, to the need for more correct enforcement of pharmacy laws.

Fifth, to abolishing the registration of Assistant Pharmacists.

Sixth, to Sunday closing and shorter hour legislation.

Seventh, to representation of drug clerks on boards of pharmacy; and

Eighth, to the limitation of the sale of drugs to pharmacists alone.

While by no means all of the Voluntary Conference members saw fit to express their views on the resolutions so submitted, it is a pleasure to report that quite a substantial number of the Conference members did give them deserved consideration. Almost without exception the Conference members pointed out that nearly all of the subject matters referred to had for years been finding consideration by the various national and state pharmaceutical and drug associations. Practically all of the Conference members were opposed to the creation of a National Commission under Act of Congress. The usual division of opinion was expressed with reference to the prerequisite. All members of the Conference favored a provision in the law which properly defines a retail drug store. Of course, all favored a thorough enforcement of pharmacy laws and contended that for their state at least such laws were being properly enforced. Nearly all were opposed to the discontinuance of registration for assistant pharmacists, though three members of the Conference thought that under some conditions or eventually such might be desirable. A very substantial majority were opposed to Sunday closing and shorter hour legislation, while some held this to be invariably a local question. A very substantial majority opposed the proposition for having drug clerks appointed to the boards of pharmacy, while some few saw no objection thereto and four favored such a proposition. Without exception the Conference members voted it as their opinion that the sale and distribution of drugs should be exclusively in the hands of pharmacists. Since the proposition for a National Commission under an Act of Congress is of far-reaching import and since its object is in line with the agitation for a national pharmacy law of some sort which has been going on for several years, your Chairman has taken the liberty to refer to that particular feature in his address, and the view therein expressed may be taken for what it is worth in this connection.

In conclusion I would say that the program for the section meetings has been so arranged as to provide for a fair discussion and exchange of opinion on at least the eight (8) new tentative provisions which have been under consideration. Some papers have been secured which will tend to open up the discussion and where such papers are not available a brief presentation of the aim and scope of the provisions will be made inclusive of such arguments for and against as have been presented to this time. The first three provisions having to do with a definition for "Potent Drugs"; with the requirement for the publication of "Potent Drug Content"; and finally with a requirement governing the manufacture, distribution and sale of drugs, will be taken up immediately after disposing of this report. The other five provisions which in some form or another are of vital concern also to the boards of pharmacy and college faculties will be taken up at the joint session with the Conference of Pharmaceutical Faculties and the National Association of Boards of Pharmacy.

Respectfully submitted,
Frank H. Freericks.

The Chairman: You have heard the report what disposition will you make of it?

J. H. Beal moved and M. I. Wilbert seconded that the report be received. Carried.

The Chairman: The first provision will be discussed by courtesy of Mr. Jordan.

POTENT DRUGS.

A DEFINITION; ITS SCOPE AND NEED.

The first tentative new provision as presented by the Voluntary Conference to be part of a Modern Pharmacy Law, reads as follows:

All chemicals and drugs, the maximum adult dose of which according to standard authorities on medicine or *materia medica* is one drachm or less, either fluid or solid, as also compounds and preparations containing such chemicals and drugs, and inclusive specially of morphine, opium, heroin, chloroform, alcohol, cannabis indica, chloral hydrate, and acetanilid, or any derivatives or preparations of said substances, are hereby defined to be of potent character. Provided that the drugs herein not specially named, the maximum adult dose of which is greater than one (1) drachm, but containing active principles of lesser maximum adult dose, as well as compounds and preparations of such drugs, shall be construed to be of potent character only when they contain the isolated active principle as such, and not as a constituent of the original drug.

From what has been said in connection with these tentative new provisions, which, of course, in no manner is to be regarded as final, it appears that Provision No. 1 embodies three distinctive features or separate ideas, and it must be considered in that light. Its first aim is to define a potent drug as distinguished possibly from a poison; its second aim is to have a proper definition serve for the purpose of requiring a publication of all potent drug content as contained in medicines; and its third aim is to find a correct legal basis for restricting the right to sell medicines, to those who are qualified by law and education for that purpose.

In order to determine the desirability of such a provision in our pharmacy laws, it is necessary to consider from the public viewpoint the value of what is sought to be accomplished.

It is argued, particularly with reference to proprietary medicines, that the public welfare requires that the public or at least its qualified representatives know the content of active drugs as contained therein. It is claimed that such is necessary to save the medicine consuming public from fraud and from harm. Those of contrary view object to a publication of formula requirements in any form, because it will tend to destroy, if it does not actually destroy property rights without any compensating benefit to the public. It will be noted that the provision is drafted to meet the reasonable demands of those who claim the need for formula publication, and, on the other hand, to meet the reasonable objections of those who are opposed thereto. The first vital question raised is, whether public welfare requires disclosure of potent drug content in proprietary medicines.

If it is fairly decided that the public is served by a publication requirement, then it must next be decided whether a definition such as is sought to be made in Provision No. 1 is a sufficient and fairly correct definition. It means to provide that any drug no matter in what quantity it be contained in a medicine, shall be shown to be so contained therein if its maximum adult dose be a drachm or less. It further means to provide that any original drug, the maximum adult dose of which is greater than one drachm, shall not be regarded as a potent drug, and its content in a medicine need not be published, but in that connection further provides, that if a non-potent drug contains an active principle which would be regarded as potent under the definition, that then, the content of such active principle if contained in its isolated character must be disclosed, no matter in what quantity it be contained therein. By way of illustration:

Any medicine would be held to contain a potent drug, even though it be only two drops of tincture of nux vomica to the tablespoonful, and such content would need to be published. If, however, it contained the extractive matter of licorice root, its content would not need to be shown, no matter in what quantity, but if it contained the active principle glycyrrhizin, then its content would have to be shown, no matter how small. The question is, whether such an attempted definition of potent drugs is fairly correct. Objection has been raised to including alcohol specifically as a potent drug, and such objection may be a valid one.

The final important feature or aim which deserves consideration is whether the publication requirement, even though otherwise not deemed of great value, should be so regarded in that it is made to serve as a legal ground for restricting the sale of medicines to those who are qualified to sell them. It is argued, that excepting possibly where medicines are furnished by physicians, all medicines should be supplied to the consumer only by a registered pharmacist. In that connection the claim is advanced that the public welfare requires the ready accessibility to retail pharmacies and drug stores, and that the desirable number of drug stores cannot be maintained unless they may have the exclusive right to supply all medicine needs. This argument is, of course, apart from the one which would give an opportunity for the exercise of judgment in the use of proprietary medicines. Does or does not the public welfare require that the right to distribute and sell all medicines to the consumer be restricted to qualified persons?

ABSTRACT OF DISCUSSION.

THE CHAIRMAN: The question, as plainly presented to you, is taken from the first provision for drafting a modern pharmacy law is, Does or does not the public welfare require the publication of potent drug content, and, if so, is the definition as given tentatively a fairly correct one? The Voluntary Conference, I am sure, will be greatly aided if you will discuss these provisions.

J. H. BEAL: There is one thing I would like to see a little more explicit. What is meant by the standard authority on materia medica? Do you mean the Pharmacopœia and National Formulary? Do you mean a text-book on materia medica?

I ask that question because, in Illinois, in offering an amendment to the Anti-Narcotic Law we used that same phraseology in another connection. It was submitted to the Attorney-General of the State and he decided that the only two standard books on medicine and materia medica in Illinois were the United States Pharmacopœia and the National Formulary. I do not state that the Attorney-General of Illinois is correct, but he is a man placed in a position of authority and he had that idea, and it is possible that others in authority may have the same idea.

What does maximum dose mean? What authority does that refer to? You will find a wonderful difference of opinion relative to maximum doses—a difference of as much as a hundred percent; and, of course, if you take homœopathic works as a standard, there will be a difference of a million percent. It seems to me that it would be advisable to go into this particular part of the definition and make a selection of books which would be uniform, and specify what was meant by "standard" or "accredited" and then modify that statement regarding maximum adult dose so as to fit the conditions as you find them in these books.

It has occurred to me also that it would be a good plan to go through the Pharmacopœia and make a list of drugs which would come under this definition. For example—this is pretty broad—it would include black pepper, because the active principle of black pepper would be fatal in doses of much less than sixty grains. The same is true of red pepper and nutmeg.

M. I. WILBERT: I would also like to caution against the use of a general definition of potent or poisonous drugs. This is a very uncertain and rather dangerous thing to undertake. Even in this country where we are inclined to state things in a broad way, we are getting away from the general definition in framing our poison laws. All our poison laws include definite lists of articles that are supposed to be poisons, and this definite list naturally is a very much better criterion of what should be considered as a poison than is a general definition such as is outlined in the report.

The question of maximum dose is rather an interesting one. While we have no criterion or authority in this country, practically all the Continental Pharmacopœias include maximum dose tables. Some three or four years ago I compiled these maximum dose tables from fourteen pharmacopœias and it was astonishing the variation that existed in the maximum dose as given in the different cases.

As Professor Beal has pointed out, the variation exceeded one hundred percent. A dose considered poisonous in Russia, double that was considered to be poisonous in Germany or in some instances, *vice versa,* which would make it appear that the Germans are susceptible to some poisons more so than the Russians. There was absolutely no correlation, and these maximum dose tables were supposed to have been worked out very carefully.

Now, if in foreign countries where they have established tables, there is such a wide variation, we in this country, having no tables, would have absolutely nothing to go by.

The same thing holds true in connection with potent drugs as considered in some of the patent medicine laws, particularly in Canada. There they realized it was impractical to make a general definition and the Canadian laws include a schedule of drugs which are considered potent and which must be registered with the authorities in Canada, and the Council has been given authority to amplify this list from time to time.

The English poison laws are on the same principle. They include a schedule of poisons and the authorities are given—on the recommendation of the General Medical Council the authorities are empowered to add to this general poison law and amplify it.

In this country up to the present time we have had no specific basis for even the poison schedule. That is, we do not know what drugs are actually used, or what drugs are actually poisonous or potent. In the future we are promised such a source of information.

This compilation, which some of you undoubtedly have seen—Poison Laws issued in 1914–15—and while I am on my feet, I want to say just a word in regard to it. I think this pamphlet is the best illustration anyone would want that pharmacists, as such, are law mad and have been for a long period of time. They appear to think that if they can only get a law on the statute books, it is the salvation of pharmacy and they certainly have a collection of laws; and this is the accumulation passed by the legislative sessions of 1914–15, and it is *some* compilation, and you are expected to live up to this collection of laws, good, bad, and indifferent. Most of them bad.

In regard to this pamphlet, I was struck, on reading the introduction, with the fact that in this country we have no authoritative information with regard to the nature of the drugs used as poisons, or the nature of the drugs that actually kill people. When this was taken up with the Director of Sciences, it was developed that the previous Director of Sciences was curious himself as to what these numerous cases of poisoning were due to; and from 1909 they are turned over to us and are published for the first time in this compilation.

We are promised for future years, beginning with 1916, similar compilations and I am quite sure they will be extremely interesting and valuable from many points of view. They will be of use, for instance, as a basis for a list of potent drugs.

It is undoubtedly a fact that the poisons used to kill people vary from year to year. The causes for that, of course, are many and varied, but the Bureau has promised to give us, at least, a list of the things that are used, and then comparing that with the newspaper reports and the records of reports of poisoning we will have some data on which to discuss the newspaper publicity in connection with poison cases.

The point I would insist upon is that general definitions be discarded and specific enumeration preferred.

C. B. Jordan: The last provision, it seems to me, is not quite clear. It says here, "Drugs shall be considered potent remedies if the dose be one drachm or less ——"

Now, licorice root and its preparation would be considered impotent if it contained added glycyrrhizin, but suppose the preparation naturally contained glycyrrhizin, it would be considered potent.

The Chairman: That is not the intention. It is simply this: No matter what quantity of licorice root or extract of licorice there may be contained in a preparation, it would not be considered a potent drug, or a preparation to be regarded as a potent drug, but if it contained added glycyrrhizin, then no matter how small the quantity, the preparation would be so considered. That feature seems clear enough to me.

J. H. Beal: Would it be in order to move to refer this particular provision back to the Committee to see if it could remove the principal objections which have been mentioned this afternoon?

If so, I move that Provision No. 1 be referred back to the Committee, with instructions to prepare, if possible, clear definitions of the term "Standard works on materia medica and therapeutics," maximum adult doses, and other matters.

Seconded by C. B. Jordan. Motion carried.

The Chairman: The next is an explanation of Provision No. 2, with which Professor Newcomb will please favor us.

PUBLICATION OF POTENT DRUG CONTENT.

The second tentative new provision as presented by the Voluntary Conference to be part of a Modern Pharmacy Law reads as follows:

"All chemicals, drugs, their compounds and preparations, of potent character as herein defined, when intended for use as medicines, shall be dispensed, distributed or sold only in containers bearing a label for ready inspection, upon which such potent drug content is plainly shown, as also the percentage of such drugs contained therein: Provided, that when such chemicals and drugs are dispensed in keeping with a written record as made by a licensed physician, dentist or veterinarian, and such written record is retained or filed by the pharmacist, physician, dentist or veterinarian, the label requirement herein shall be satisfied when the container of the chemicals and drugs so dispensed contains a number or mark corresponding with a number or mark on the written record, so that it may be readily identified."

Very clearly this provision aims to compel the publication or record keeping of potent drug content contained in all medicines distributed to the consumer. Insofar as it has to do with publication of formula of proprietary medicines the question has been discussed in connection with Provision No. 1. The thought underlying and demand for the publication of potent drug content is carried to its logical conclusion in that it would prescribe a requirement which will enable such as are entitled thereto, to learn or to know readily what potent drugs may have been administered. As distinguished from proprietary medicines it has to do with medicines dispensed upon physicians' prescriptions or by the physician himself. Insofar as it concerns medicines dispensed by pharmacists on physicians' prescriptions, the requirement exists by custom to-day, but insofar as it concerns medicines dispensed by physicians themselves it does not exist to-day in any form. Those who urge such a requirement to be essential advance as a reason, that medicines are very generally distributed to patients by physicians without any record whatever of what has been so dispensed. No one other than the physician, and frequently not even he is able to say what potent drugs are contained in a medicine which he may have left with or given to a patient. It is urged that since physicians usually leave medicines of decided potency that there is even far greater need as a safeguard for the public that a record be made, and that in some form it be available. The provision as drafted would leave it optional with the physician to show the potent drug content on the label of the container, or otherwise to make it possible for identification by the keeping of a written record and identifying number or mark. No more valid objection has been raised to this provision, other than that physicians generally will be opposed thereto, and that as a consequence the chances for its enactment into law are practically nil. It is submitted that if the public welfare really requires such publication or means of identification, that then on proper education of the public an enactment can be secured, even though the medical profession continue to be opposed thereto. The broad question is, whether public welfare requires such publication or means of identification in connection with medicines dispensed by physicians.

ABSTRACT OF DISCUSSION.

M. I. Wilbert: I believe that you would have the coöperation of all the best men in the medical profession in a provision of this kind. The probable opposition of a certain class of medical men could be overcome by a provision somewhat analogous to the provisions in the Patent Medicine Stamp Law in Great Britain. Proprietary medicines made according to an established public formula do not pay an internal revenue tax; and in order to overcome the probable objections of a certain class of self-dispensing doctors, I think it would be quite practicable to evolve some scheme of that kind—that where the formula is published in a recognized book of formulas or standards that the title of that formula be accepted in lieu of a detailed report of the supposed constituents. That would overcome the objection from any point of view the dispensing doctor might hold. Not compounding the medicines himself, he does not actually know what the medicines contain. Or, on the other hand, that it would take too much time and trouble to write out all the several ingredients and quantities, or that he does not want his patient to know what he is actually taking, but is quite willing to safeguard his patient, and to permit the authorities to know whether his patient has been getting a toxic or poisonous drug by indicating the formula or composition in the broad way suggested.

As Mr. Newcomb was reading the provision, this struck me as being a probable way out of the difficulty. But I am sure, so far as the better class of the medical profession is concerned, they will heartily endorse a proposition of that kind to safeguard the patient or to permit other doctors or physicians or health officers to determine what the patient has been taking and determine whether or not he has been getting a potent drug.

W. C. Anderson: I cannot agree with Dr. Wilbert as to the attitude of the physician toward this provision. I think a great majority of such physicians would refuse to obey it. It seems they are failing to comply with a great many of the laws on the statute books to-day. The matter of keeping a record of the sale of narcotics is opposed and the physicians claim they will not do it. In all the cases that have been brought to court, the physician—in every case—has been relieved of any punishment when he has failed to keep these records, on the assertion that his work with the patient was of a private nature and he could not be required to make a record of the name and address of the patient as required under the law, and no convictions have been had under that law because of that claim.

We have a condition here that, in my opinion, would be practically the same, and I think the further we keep away from formula-disclosure operations in our pharmacy laws the better it will be for pharmacy.

I cannot see where anything can be gained for pharmacy if this provision, or the first one considered, which is in reality a formula-disclosure proposition, be passed. When you place on the label the name and quantity of potent drug you practically require the exposure of any formula that is of any value and, consequently, all remedies would have to have placed on the label, the constituents they contain; that is, the constituents that have any medicinal activity.

The object sought for in both these provisions, as far as pharmacy is concerned, is an excellent one. The underlying thought is that we could insert in our pharmacy laws, provisions that will enable us to retain to the pharmacist the sale of all preparations that contain potent drugs. I think that is the idea of the Committee in presenting this proposition—that pharmacy is to be benefited in that way.

In our present condition we bring a proposed law to a legislature requiring that preparations should be sold only in drug stores and are defeated on the ground that package preparations can be sold in dry goods stores and grocery stores as well as in drug stores, and that it requires no special knowledge of these preparations to sell them to the public, and by making a provision of this kind, showing the drug content, we would then be able to establish the fact that these potent drugs should be handled only by registered pharmacists. I think I am correct in this.

Another object is to prevent, if possible, the dispensing by physicians, or to lessen the dispensing by physicians, because of the fact that, according to this provision, they would be required to keep a record of everything they dispense out of their offices, and they would just as soon write a prescription as to go to the trouble of recording the ingredients of the medicines they give to their patients.

That is another worthy object. But, in attempting to attain this the danger in my mind is that we will do what we have done so often—put restrictions around the pharmacist, lessening his business, and gaining nothing for him in the end.

When we discussed the dispensing by physicians generally in our meetings, the physicians came to us and said that if we would take all the patent medicines out of our stores and stop selling anything for self-medication, then they would consider writing more prescriptions. Of course, the druggists have to give up something first, with a very faint or very vague chance of getting anything in return; and those very physicians who make that promise, if every patent medicine were taken out of the drug store, would not write more prescriptions for that same druggist. There is the position we are in—it is placing restrictions around the druggist with the hope of getting something in return, and I am opposed to this whole proposition of formula-disclosure.

The original advocates of formula-disclosure and the most persistent, did not have the welfare of the public in mind. There is only one object in it, and that is to stop the sale in a drug store of every remedy unless the physicians get some pay from it. That is the object. There is no use of us blinding ourselves to the fact, and there is no use in trying to prevent the public from treating themselves as they have been treating themselves for years and years, and with the remedies they want to use. Now, are you, as representing the pharmaceutical trade and profession, going to encourage a proposition of this kind? Are you going to assist in eliminating from the drug store all the remedies that you sell to the public generally for simple use and then get nothing in return?

I think we are wrong on this proposition and, as Mr. Wilbert says, the pharmacists sometimes are drug-law crazy, and I have taken the position for sometime, and I want to say it again, that we had better be on the defensive with reference to drug legislation to a very great extent and defend ourselves from the oppression that has been placed upon us rather than agitating provisions that are going to reduce our income without any benefit to the public.

M. I. WILBERT: I would like to emphasize what Dr. Anderson just said insofar as his ideas regarding these provisions are concerned. If the intent of these provisions is to safeguard the pharmacists, leave them alone by all means, for you will only be putting a mill-stone around your own neck.

A. W. LINTON: It seems to me that as far as this provision affects the physician, the physician will have to write a prescription for the medicines which he dispenses himself. Under the present condition he writes a prescription and sends it to the pharmacist who places it on file. If any question ever arises as to the quality or proper dispensing of that medicine the pharmacist's file is open to the health authorities and can be consulted, but under the present conditions, with the physicians dispensing their own medicines, there is no record or way of finding out what it was, and it seems to me that this provision would mean that a physician intending to dispense medicine himself would write a prescription, put it on file, and then put on the package some number or other mark, so that the medicine could be checked up with the prescription on the file. I think that is all right. If it is desirable that the pharmacists may be checked up, it is equally desirable that the physicians be checked up also. In some of the states it has come to be the case that a physician's stock of medicines is subject to inspection by state officials just as the pharmacist's is. I see no reason why physicians should be exempt.

Theoretically that is a good thing, but there is a practical objection to it. Two years ago, in Washington, we tried to pass a new pharmacy law and it was intended to correct about all the evils pharmacy is subject to. We were going to cure everything with the one law, and I do not think that law was as carefully considered as this modern pharmacy law now under discussion; but it was carefully considered and I think it would have been a good law, but there were too many provisions in it, and that was the trouble with it when it came before the legislature. Anyone who was opposed to any provision started to fight against it, and there were so many interests opposed to it that it was killed. It seems to me that if this provision we are discussing here were made a part of the pharmacy law we would have the opposition of the physicians to overcome. It seems to me that we should go about the essential things and make pretty sure of getting them and not try to introduce a remedy for every evil. We know there are a lot of things that ought to be corrected and I do not think it possible to get through any legislature a law that will correct all of them at one time.

THE CHAIRMAN: We will now pass on the consideration of the last of the subjects for this session—Provision No. 3, which will be read by Dr. Wilbert.

Shall the compounding and manufacture of medicines be restricted to pharmacists exclusively, and shall the distribution and sale be restricted exclusively to those who are specially qualified?

The third tentative new provision as presented by the Voluntary Conference to be part of a Modern Pharmacy Law reads as follows:

"All chemicals, drugs, their compounds and preparations, when of potent character, as herein defined, when intended as medicines, except as hereinafter provided, shall be dispensed and sold at retail to the consumer only by or under the supervision of a registered pharmacist; compounds and preparations of such chemicals and drugs shall be compounded and prepared only by or under the supervision of a registered pharmacist. All such chemicals, drugs, their compounds and preparations, when intended for distribution or sale at retail as medicines in their original packages, shall be labeled to show that they have been prepared by or under the supervision of a registered pharmacist. When imported into this state for sale at retail, they shall in like manner show that they have been prepared by or under the supervision of a pharmacist licensed or registered at the place where compounded or prepared. Such chemicals, drugs, their compounds and preparations, when compounded, prepared and labeled in their original packages as herein required may be dispensed, or may be dispensed from, and sold by registered physicians, dentists and veterinarians without showing on the label by whom compounded or prepared: Provided also, that such chemicals, drugs, their compounds or preparations, when compounded, manufactured, or prepared by or under the supervision of a registered pharmacist, may be sold or dispensed at retail in communities or places located at least —— miles distant from a registered pharmacy, by storekeepers licensed for that purpose by the Board of Pharmacy."

The provision contemplates a number of very definite changes which have to do with the compounding, manufacture and distribution of medicine. It requires:

First.—That all medicines when of potent character shall be compounded and prepared only under the supervision of a registered pharmacist;

Second.—That such medicines shall be dispensed and sold to the consumer only under the supervision of a registered pharmacist excepting that when they have been prepared and compounded under the supervision of a registered pharmacist they may in their original form be dispensed and sold by registered physicians, and concerning proprietary medicines they, also, when compounded under the supervision of a registered pharmacist, may be sold by storekeepers licensed for that purpose when distant a specified number of miles from a registered pharmacy.

Third.—All such medicines distributed to the consumer shall show on the label that they have been prepared under the supervision of a registered pharmacist, excepting such as are dispensed in original packages, or from original packages by registered physicians, who then in keeping with Provision No. 2 will be required to make and keep a record.

In its broadest sense Provision No. 3 requires that medicines containing potent drugs shall be compounded only by or under the supervision of a registered pharmacist. It would exclude the physician who is not also a pharmacist from compounding the medicines which he would dispense, and would limit him to dispense only such medicines as have been prepared by or under the supervision of a registered pharmacist.

The other requirement to limit the sale and distribution to registered pharmacists, and to registered physicians, etc., excepting in the case of licensed storekeepers, in connection with proprietary medicines particularly, is important but not to an equal extent. It is argued for such a requirement that the compounding and preparation of medicines requires special training, and that the physician usually lacks such special training. As in connection with Provision No. 2 the only objection which has been forcibly raised is that physicians generally will be opposed thereto, and will be able to defeat its enactment, even though the true public welfare require it. Does the public welfare require that all medicines be compounded and prepared by those who are specially trained for that purpose?

ABSTRACT OF DISCUSSION.

M. I. **Wilbert**: When that was discussed a year ago, I raised objection to this particular point as being altogether impracticable as a state law, but as I outlined to Mr. Freericks last evening I have an idea of something that is coming in the not far distant future that will eliminate the objection to this particular phase.

Those of you who have followed state legislation appreciate the rapidity with which prohibition legislation is growing over this country. It is really astonishing. The prohibition legislation being enacted at the present time is quite different from that of ten or fifteen years ago, and those of you who are from prohibition states—North and South Carolina, Oregon and Washington—have some idea of the provisions being incorporated in these prohibition laws and the irksome nature of the restrictions placed on retail druggists. And yet, the prohibition laws are not enforceable. The prohibitionists of this country are recognizing that, and irrespective of the fact as to whether these laws are good, bad or indifferent, the people who are in favor of them are strongly so and would advocate any provision that will make them enforceable.

Now, if the pharmacists will recognize that and recognize it on a very broad plane, they can bring about a situation that would be of immense importance and open up great possibilities. At the present time a man doing a legitimate drug business in a prohibition state is required to register as a retail liquor dealer. If he registers as a retail liquor dealer he is on record as a retail liquor dealer and he is suspected and pointed out in the community as a retail liquor dealer. Some retail drug stores in such states are simply "blind tigers" and in reality retail liquor shops, and these retail liquor shops in prohibition territory have done more to discredit pharmacy than any other thing in this country. This is another thing we should recognize and undertake to cope with, if possible.

Now the possibility that from the standpoint of the practical pharmacist would be a very desirable one, would be the introduction of an additional license feature for the handling of alcohol for legitimate drug use, and if the retail druggists of the country could be licensed as dealers in alcohol and narcotic drugs and pay one license fee, it would eliminate the separate classification of retail liquor dealer. It would put the druggist where he properly belongs as a pharmacist and open up the possibilities of legitimately handling alcohol in prohibition territories without the onus of being suspected of illegitimate business.

To open that provision to everyone would leave us just where we are. A Federal law, however, could be devised that would provide restrictive measures of a very far-reaching character in limiting the nature of man to whom such licenses were to be issued. Since the issuance of the license is open to everyone the Federal Government, as I see it, can put any restriction it chooses on the issuance of that license, providing it is uniform. My idea was that in connection with such law it would be practicable to provide for a system of examination under existing civil service boards; the civil service board, to begin with, to issue what they call "non-assembled" examinations, which would, in effect, be a written statement on the part of the applicant as to his qualifications to do certain things and his willingness to abide by certain regulations. In addition to that, this civil service commission could also provide for direct examinations, and in that way provide for a national examination for pharmacists which national examination would take the place, or be somewhat akin to, the National Board of Medical Examiners. It would be more complete and more far-reaching because it would be conducted under Federal auspices by Federal officers and in compliance with rules outlined by the Civil Service Commission.

You can see what the possibilities of that would be. A man who could not handle liquor and narcotics could not fill prescriptions. It would provide immediately for a differentiation in the drug business. It would not interfere in any way with the existing retail druggists who handle largely package medicines, or ready-made medicines containing no alcohol nor narcotics. It would not interfere with the neighborhood accommodations for the so-called retail drug store. It would provide for the neighborhood pharmacy and would safeguard the man who qualifies under the law. It would safeguard his business in a practical way. He would have added responsibilities, it is true, but every corner would not be filled with a competitor, because the number of stores would naturally be restricted on account of the elimination of that particular kind of business through the inability of everyone to comply with the regulations, provided the regulations were sufficiently high.

To me the possibility is an interesting one, and one well worthy of thought and possible elaboration. This particular phase of it, of course, would appeal to the prohibitionists for this reason and to this extent. If the retail druggists of this country would be willing to solicit the co-operation of the prohibitionists they could put a law of that kind through Congress in very short order, because prohibitionists in this country, particularly in Congress, are very, very strong and anything that would make for the enforcement and complete enforcement of state prohibition laws would meet with such hearty support on the part of prohibitionists and it would go through Congress so rapidly that it would surprise many of you. That is the idea I had in mind as to overcoming this provision in so far as its impracticability is concerned. That provision applies to interstate restriction by a state law.

The Chairman: Only as one provision.

M. I. Wilbert: Yes. It is impracticable because no one state can legislate as to a preparation made in another state, and cannot prevent the importation of a preparation from another state as long as it is not sold or dispensed.

W. C. Anderson: What could be gained to pharmacy or the prohibition cause by such a proposition I cannot see. I do not think that Dr. Wilbert means to infer that there are so many "blind tigers" in the drug stores of this country that we should have a special law putting 75 percent of the druggists out of business so far as their right to compound prescriptions is concerned in order to protect the people against the sale of liquor in retail drug stores. The idea is ridiculous, and while there may be some of these "blind tigers" in some of the states, I do not know where they are. I cannot see any logic or anything to be gained by the plan suggested by Mr. Wilbert, and I think one of the first things that the American Pharmaceutical Association and the pharmacists of this country should do would be to oppose such a proposition most heartily, because there is evidently very great danger in it, and I can not see where there is any good.

THE CHAIRMAN: It seems to me that in our debate we have gotten away from the provision of your Voluntary Conference in that it was a question as to whether it is right in the public welfare that medicines be prepared only by pharmacists. That is the question that is presented by Provision No. 3. Is it, in your judgment, considering the matter purely and alone from the viewpoint of the public welfare, necessary that medicines be compounded under the supervision of registered pharmacists alone, meaning all medicines?

L. F. KEBLER: Would that apply to the manufacture of morphine?

THE CHAIRMAN: No. We are speaking of preparations.

L. F. KEBLER: Is not morphine a preparation?

THE CHAIRMAN: Not in the sense it was spoken of or construed in the provision. We are speaking there of compounds and preparations sold at retail. I get the thought Dr. Kebler has in mind, but that was not the intent at all, although it is well to have it brought out.

L. F. KEBLER: Suppose I prescribed for a patient a mixture of morphine sulphate and sugar, is not that a preparation?

THE CHAIRMAN: That would be a preparation. The question is whether the welfare of the public requires that only a pharmacist should prepare such a prescription.

L. F. KEBLER: Would that apply to the manufacturing, for instance, of a tablet by a manufacturing house? Would it be necessary that a pharmacist actually complete the preparation himself, or only under his supervision?

THE CHAIRMAN: Under his supervision. The idea is that each manufacturing house must have in its employ, at least one registered pharmacist.

L. F. KEBLER: He might not go into the laboratory, but tell some other man how to do it?

THE CHAIRMAN: The operations of every manufacturing pharmacist must be under the supervision of a registered pharmacist. That applies in the sense that if the manufacturing establishment had in its employ at least one registered pharmacist, that would satisfy the law.

If there is no further discussion, the program is concluded, except that we will entertain further nominations for officers for the ensuing year and then proceed to the election of officers.

Moved by M. I. Wilbert and seconded by William Mansfield, that the nominations be closed.

Motion carried.

The following were then elected: R. A. Kuever, chairman; C. B. Jordan, secretary; associates, A. W. Linton, H. V. Arny and John Culley.

The meeting was then adjourned.

CONTRIBUTED AND SELECTED

HOW MUCH IS THERE IN A NAME?

BY C. FERDINAND NELSON, PH.D.*

American pharmacy is rapidly becoming national in its scope, in its character and its purposes. On all of the vital issues that confront us sectional interests are rapidly giving way to a larger nation-wide thought. We are obliterating the lines which mark the boundaries of our half hundred odd states and in their stead tracing the outlines of a larger and finer circle whose circumference is limited only by the Atlantic and the Pacific, the Gulf and the Great Lakes. We are thinking more than ever in national terms. We assemble and discuss our problems in gatherings that number members from every state of the Union. We like to feel that we are American pharmacists, whatever the particular state may be in which we happen to be registered.

Nor does the matter stop here. Our press knows no state boundaries, but finds its way to the remotest corners of the land. Our colleges have established a national association as have also our boards of pharmacy. We are making fair progress and have come generally to believe in the typically interstate problem of reciprocal registration. More and more we are coming to feel that we have a common purpose, common interests, common ideals, thoughts in common. *Would we not profit by having a common name or title, alike in all the states?*

The problem of a nation-wide pharmacy law is too remote at present to permit of more than delightful speculation and yet it will come up in discussing common interests. It would be splendid indeed if Pharmacy could antedate Law, Medicine and Dentistry in this respect. Maybe it can if we work ardently enough. But my title goes begging "How Much is There in a Name?"

The answer to this question depends a great deal on the point of view we take and may be made much or very little of, as we choose. Let us examine it further. First of all we should remember in this connection that very often do we find, and particularly is this true in the professions, that it is the so-called little things that count for most. Of all men, the pharmacist has been most keenly aware of this in his business relations. He it was who first introduced the sale of postage stamps, made his store a general waiting-room, furnished telephone and ran a thousand errands for the public. He has ever been the good Samaritan to wounded, crippled, weary and fainting humanity. Sometimes his services have been large, sometimes very small, and yet both have contributed in determining society's opinion of him. Service in little things has become the watchword of retail as well as of all business. Our journals are continually full of suggestions of how best to act so as to secure the respect and good will of our patrons. We try studiously to be neat, prompt and accommodating in order that we may accomplish the same results. And experience has taught us that the little things count.

In the professions such as law, dentistry, medicine, and pharmacy there is another very potent factor which must be considered. Indeed, other things being equal, the question of service which we have been speaking of becomes almost of secondary importance. I refer to the dignity of a profession. There is no need at this point to go into any detailed discussion of what this term means. We all know its importance and force, and that the more of it a profession enjoys the higher it stands in any community.

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When we come to examine the variety of names or titles which the different states have for one reason or another coined for the pharmacist and which appears on his certificate, we cannot help but feel that the unity and dignity of the calling has suffered greatly thereby. It is certain that doctors, or lawyers, or any other set of professional men would never submit to a similar classification. It would greatly benefit pharmacy and help to give us a common standing throughout the country if the various state boards of pharmacy could agree on one name by which to designate the men who pass their final examinations to practice. To-day we speak of licentiates in pharmacy, registered pharmacists, licensed pharmacists, licensed druggists and locally registered pharmacists. These are all full-fledged pharmacists and should be known under one title only. The double standard which we have resorted to a great deal in the past, and still follow to some extent, of making men competent in one community and not in another in the same state or attempting to make them fit to manage stores in small towns but not in fair, medium or large-sized towns, can find little more excuse for existing than if a state board of health should declare that it had two kinds of doctors, one kind fit for small communities, the other for larger ones. These things all hurt the profession. The terms *Apprentice in Pharmacy, Assistant Pharmacist* and *Pharmacist* are simple, self-explanatory, dignified, and appear to be sufficient. The words licensed or registered seem superfluous and certainly detract, particularly the former term, because, instead of making pharmacy a profession, it makes it appear to be a privilege of some sort for which a tax is demanded. One cannot help thinking how queer it would seem to have the state issue a member of the medical profession a permit reading, " Wm. B. Smith, Registered or Licensed 1916 Doctor."

It matters a great deal what you name a man, especially if he be a member of a profession.

REPORT OF THE COMMISSION ON PROPRIETARY MEDICINES OF THE AMERICAN PHARMACEUTICAL ASSOCIATION FOR 1915–1916.*

General Approval of the Ten Declarations of the 1915 Report.—The 1915 report of the Commission presented ten declarations specifying the requirements to which proprietary package medicines should conform in order to render them suitable for direct sale to the general public. These declarations were approved by the American Pharmaceutical Association at its sixty-third annual meeting, San Francisco, August 9–14, 1915, were printed in the JOURNAL,[1] and later issued in the form of a reprint.

A member of this Association, Mr. W. A. Hover, brought the report of the Commission to the attention of the National Wholesale Druggists' Association at its forty-first annual meeting, at Santa Barbara, California, September 27 to October 1, 1915, which association approved all of the requirements except No. 8, which reads as follows:

> *Incurable and Contagious Diseases.*—The preparation must not be advertised or recommended as a cure for diseases or conditions which are generally recognized as incurable by the simple administration of drugs, or for the cure of contagious or acute diseases the treatment of which properly requires the supervision of a qualified medical attendant.

While the N. W. D. A. seemingly approved the general purport of the declaration, it was thought that it might be construed to include affections which, though technically of an acute nature, might not be of sufficient gravity to necessitate the attendance of a physician.

In October, 1915, the Chairman was invited to a conference with a special committee of the Proprietary Association for a general discussion of the work of the Commission and of the ten requirements which it had proposed.

The Chairman accepted the invitation, and frankly explained to the special committee the purport of the requirements as he understood them, and the reasons which influenced the Commission to adopt them.

As a result of this conference the special committee made a report to the Proprietary Association recommending the adoption of a majority of the ten declarations as the standard to which remedies marketed by members of that association should be made to conform.

The Proprietary Association at a special meeting adopted the report of its special committee in the form of an amendment to its By-laws which reads as follows:

REQUIREMENTS FOR MEMBERSHIP AND PROVISIONS FOR ENFORCEMENT OF SAME.

(1) The preparation must be of such character as may reasonably be expected to bring about the results for which it is recommended. Statements on packages and elsewhere regarding composition, origin, place of manufacture, and name of manufacturer or distributor must be in exact accordance with the facts. Statements regarding therapeutic effects must neither be obviously unreasonable nor demonstrably false.

(2) The preparation must not be offered or intended directly or indirectly for use as an abortifacient nor for any other immoral or illegal purpose.

(3) The preparation must not contain cocaine or eucaine; nor shall it contain opium

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* Presented and approved at the Sixty-fourth Annual Meeting of the American Pharmaceutical Association, Atlantic City, 1916.

[1] JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, October, 1915, p. 1148–1167.

or any of its alkaloids or their derivatives in greater proportions than those specified in Section Six of the Federal Law, commonly known as the Harrison Act, and it shall also contain other active drugs in such proportions that when used as directed it will not be likely to create or satisfy a drug habit; provided that if specially intended for the use of babies or small children the preparation shall contain none of the drugs named in this section in any quantity.

(4) If the preparation contains alcohol the amount shall not be greater than is properly necessary to hold in solution in permanently active condition the essential constituents of the preparation and to protect against freezing, fermentation or other deleterious change, and the medication shall be sufficient to render the preparation unsuitable for use as an intoxicating beverage.

(5) The preparation must not be advertised or recommended as a cure for diseases or conditions which are generally recognized as incurable by the simple administration of drugs.

(6) The package either as to wrapper, label or accompanying literature shall contain no statement in conflict with the misbranding provisions of the Federal Food and Drugs Act.

(7) The preparation must be of such a character as not to endanger life or health if used in accordance with instructions accompanying the package.

(8) In order to secure the enforcement of these requirements and to take charge of the examinations necessary to that end, a Committee on Requirements shall be selected by the Executive Committee, with power to carry out the work as outlined by these requirements under such rules and with such salaries as may be determined by the Executive Committee, to which Committee may be appealed any findings of such Committee on Requirements. For the purpose of rendering all possible aid to the members in the work of conforming their preparations to the requirements, each member shall submit for examination to such Committee on Requirements, complete packages of his preparations, including all literature contained in such packages, with such information as may be necessary to determine the fact of compliance in all respects with such requirements. No member shall be obliged, under this provision, to reveal his formula.

It will be observed that the provisions of this by-law, while differing somewhat in language, in the main cover the same ground as the ten declarations approved by this association, and may be regarded as a distinct step towards the introduction of reasonable standards into the proprietary package medicine business.

Lately it has been unofficially reported that the Committee on Requirements provided for in the last section quoted above has been engaged in examining the products and literature issued by the members of the Proprietary Association, and that all members will be required to conform to the provisions of the new by-law or withdraw from the association.

The National Drug Trade Conference at its last session, held at Washington, D. C., December 16, 1915, also took the report of the Commission under consideration, and after a brief discussion, most of which was of a favorable character, referred the definitions and declarations of the report to a special committee with instructions to report thereon at the next session of the Conference.

In the *Journal of the American Medical Association* (December 25, 1915, p. 2210) there appeared a four-page review of the Commission's report, by Dr. Torald Sollmann. Dr. Sollmann's remarks are on the whole commendatory, though they express the idea that the report was not sufficiently radical in its recommendations. This review is an excellent presentation of the subject from the standpoint of one who is strongly opposed to the manufacture and general sale of package remedies, *i.e.*, of "patent medicines."

More or less discussion of the report has also appeared in the daily press. In the *New York Tribune* (Sunday, June 16, 1916), Samuel Hopkins Adams presented a lengthy, critical and generally commendatory review in which he says:

The report of the Commission on Proprietary Medicines of the American Pharmaceutical Association is the result of two years of careful, expert investigation. The motives inspiring it were to clean up false advertising for the good name of the pharmaceutical trade, and to improve conditions which had become a public scandal and a public danger. Their conclusions form a notable document in the campaign against the Great American Fraud. While it is by no means a radical or sweeping pronouncement, it strikes straight at the vital points of fraud and danger. If followed up, it cannot fail of far-reaching reform.

The Right of the Pharmacist to Deal in Proprietary Medicines.—A criticism offered to the 1915 report was that it dealt mainly with prohibitions, and that it did not contain any expression regarding the right of the pharmacist to deal in ready-made or package remedies intended for direct sale to the general public.

In explanation it may be stated that the Commission took it for granted that proprietary ready-made or package remedies would be recognized as legitimate articles of commerce, provided and so long as they conformed to the requirements laid down in the 1915 report.

To remove any misapprehension on this point, the Commission now offers the following declarations as expressing its views of the relations of the drug trade to the sale of proprietary medicines:

(1) *A Legitimate Field for Certain Proprietary Remedies.*—There is a legitimate field for ready-made or package remedies intended for the domestic treatment of common ailments, provided they are appropriate for use in the particular affections for which they are recommended, and are not deceptively labeled or advertised, or otherwise improperly exploited.

(2) *Traditional Right of the Pharmacist to Deal in Such Remedies.*—It is the professional right of the pharmacist, sanctioned by custom and tradition, to keep such remedies in stock, whether manufactured by himself or by others, and to supply them to the general public on demand. In meeting the demand for ready-made or package remedies, the pharmacist should refrain from usurping the proper functions of the physician, especially in regard to diagnosis.

Alcohol and Habit-forming Drugs in Proprietary Medicines.—One of the specific duties assigned to the Commission is:

> "To inquire whether, and to what extent, the proprietary medicines commonly known as patent medicines, contain alcohol or habit-forming narcotic drugs in sufficient proportions to render them liable to create an alcohol or drug habit, or satisfy such habits when otherwise created."

Obviously it would be physically impossible for the Commission to examine all of the many thousands of package remedies on the market, and any judgment of their alcohol or habit-forming drug content must therefore be based upon the examination of a selected list of preparations.

Obviously also, such a list might be selected in such a manner as to give an entirely erroneous impression of the prevalence of alcohol and narcotic drugs, and show either a greater or less proportion of preparations containing these substances than would represent the average of the market.

To insure what might be regarded as a fair average list the following method was adopted:

There was first compiled a list of manufacturers of proprietary medicines located in various parts of the United States, including both the makers of widely advertised remedies and of those having only local or sectional repute. The list thus included both large and small producers of proprietary medicines.

After the list of manufacturers was completed, an effort was made to obtain as complete a list as possible of all the package remedies made by them, both liquid and solid, without regard to whether they contained alcohol or habit-forming drugs or were free from them.

From the labels of the preparations thus obtained there was compiled a list of those which were stated to contain alcohol or habit-forming drugs—as required by the Federal Food and Drugs Act—and the proportions in which these were stated to be present.

In this manner there was obtained a list of 1108 preparations believed by the Commission to be a fairly representative list of package remedies as manufactured and sold within the United States. Of these 1108 preparations, the labels of 308, or 27.79 percent of the total, carried a statement showing the presence of alcohol in proportions of 1 percent or over.

As a means of testing the accuracy of the above computation, the Commission this year obtained from the Chairman of the Committee on Requirements of the Proprietary Association a complete list of the preparations manufactured by that association and of the label statements of the proportions of alcohol and of narcotic drugs contained therein.

From this list it appears that a total of 1078 liquid and solid preparations are marketed by members of the Proprietary Association, of which 342, or 31.72 percent of the total, contain alcohol in proportions of 1 percent or more. Of these 342 preparations, 25 are of the nature of hair dyes, toilet creams, flavoring extracts, or general pharmaceutical preparations not strictly of the type commonly known as "patent medicines." Subtracting these we have a net total of 317 preparations, or 29.40 percent of the whole number which contain alcohol in proportions of 1 percent or over.

There is therefore a difference of 1.61 percent between the figures obtained by the Commission from the examination of a general list of widely selected patents and those obtained by an examination of the preparations put out by members of the Proprietary Association.

While the Commission does not contend for the absolute exactness of either calculation, it is inclined to the opinion that if all of the package remedies of the market could be examined the ratio of alcoholic to non-alcoholic preparations would not vary greatly from the figures set down above.

In a comparative study [2] of the alcoholic to non-alcoholic preparations of the United States Pharmacopœia VIII and National Formulary III, it was found that of 427 liquid and solid U. S. P. preparations, and of 575 liquid and solid N. F. preparations, 206 of the former and 274 of the latter contained alcohol in proportions of 1 percent or over.

Shown in tabular form the frequency of alcohol in proprietary package preparations as compared to U. S. P. and N. F. preparations is approximately as follows:

Proprietary package preparations, probably about........	30 percent
U. S. P. (VIII) preparations	48.25 percent
N. F. (III) preparations	47.65 percent

It should be kept in mind that the above figures are intended only to show roughly the relative frequency of occurrence of alcohol in the classes of preparations compared, and have no bearing upon the average alcoholic content of the respective classes of compounds.

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[2] J. A. Ph. A., October, 1915, p. 1162–1163.

Permissible Alcohol Content.—Declaration No. 3 of the 1915 report, expressing the permissible alcohol content in popular package remedies, is as follows:

> If the preparation contains alcohol, it must be sufficiently medicated to prevent its use as an intoxicating beverage, and in addition to this requirement, the proportion of alcohol present must not be greater than is properly necessary to hold in solution in permanently active condition the essential constituents of the preparation, and to protect the preparation against freezing, fermentation, or other deleterious change.

It will be recognized by every one familiar with the manufacture of pharmaceutical preparations that the proportion of alcohol necessary to keep the "essential constituents" of a solution in "permanently active condition" or to protect it "against freezing, fermentation or other deleterious change" will vary constantly with the character and quantity of the substances in solution. Whether or not alcohol is present in excess in a given preparation can be determined only by an examination of that particular preparation.

The Proportion of Alcohol Required to Prevent Fermentation or Moulding.—During the past year experiments have been continued to determine the least proportion of alcohol necessary to prevent fermentation and molding in liquid preparations which do not contain other antiferments or antiseptics.

The liquids employed have been hydro-alcoholic tinctures of simple vegetable drugs, after removal of the original alcohol by evaporation.

After sterilization, the liquids were inoculated with pure cultures of yeast, or with the common mold *Penicillium glaucum,* and kept under observation at laboratory temperatures for periods of five to ten days.

When the inoculated flasks were kept closely stoppered, so as to prevent evaporation of alcohol or the entrance of adventitious organisms, it was found that the presence of about 13 percent by volume of absolute alcohol was sufficient to prevent fermentation—indicated by gas formation—and about 16 percent to prevent the growth of mold.

If the flasks were only loosely stoppered, so that evaporation of alcohol could occur, it was found that an initial proportion of about 17 percent of alcohol was necessary to prevent fermentation, and of about 19 percent to prevent the growth of mold, within a period of ten days.

It is intended to continue the experiments with a larger list of preparations, and under conditions of exact control, during the next year.

From the information already obtained it seems fair to conclude that a proportion of alcohol not exceeding 19 to 20 percent by volume should not be considered excessive in preparations of simple vegetable drugs, when used simply to prevent fermentation and molding during storage and shipment under commercially practicable conditions, and while under consumption by the purchaser.

The Proportion of Alcohol Required to Prevent Freezing of Hydro-Alcoholic Preparations.—The prevention of freezing during transportation or storage is a matter of very great importance to those who ship goods to the northern states during the winter season, and to those who store them for sale in such climates.

In the absence of dissolved substances, a mixture of 20 parts of alcohol and 80 parts of water will freeze at about 10 degrees above zero and a mixture of 30 parts alcohol and 70 parts water at about 5 degrees below zero (Fahrenheit scale). In the presence of dissolved substances, as mineral salts, vegetable extractives, etc., the freezing points of the liquids would, of course, be lowered below those given.

In the absence of considerable vegetable extractive or of other dissolved substances the presence of 20 percent by volume of alcohol is therefore not excessive as a protection against freezing of preparations shipped or stored in the northern states during the winter months.

Of course it does not follow that a preparation is unobjectionable simply because it does not contain more alcohol than is necessary to prevent fermentation, molding, or freezing, since the degree of medication might, nevertheless, be so slight, or of such a character, as to render the liquid capable of being used as a tipple.

The preceding statements do not, of course, refer to preparations in which a very high percentage of alcohol is necessary to hold the essential or important constituents in solution. Notwithstanding their high alcohol content, such preparations are usually less adapted for tippling purposes than the weaker ones.

Whether a preparation is or is not objectionable because of its alcoholic content is therefore a question that must be determined by an examination of the facts in each particular instance.

Habit-forming Drug Content of Package Remedies.—The examination last year of the labels of 1108 package remedies exhibited a total of 92, or 8.3 percent of the whole number, which contained opium or its alkaloids or derivatives, cannabis indica, or chloral hydrate, and mostly in proportions lower than those permitted by the federal anti-narcotic act. The examination of the labels of 1078 similar preparations this year exhibited only 61, or 5.65 percent of the whole number, which contained any one of the drugs named.

Of the five preparations examined this year which contained extract of cannabis indica, three were corn remedies which could not be used internally, and two were cough remedies not likely to be used in large doses or for any considerable length of time.

Of the four preparations which contain chloral hydrate one was a hair tonic, one an antiseptic lotion, one an application for eczema, and one a toothache remedy.

None of the preparations examined this year or last contained either cocaine or eucaine in any quantity.

Discussion of Formula Publication, Etc.—During the past year the Commission has devoted considerable attention to the discussion of the open formula proposition, and of other methods that have been proposed for the control of the manufacture and sale of package remedies.

The questions particularly considered with a summary of the answers thereto are presented below.[3]

(1) Will the open formula, *i.e.*, publication of the active ingredients on the label, be likely to increase or decrease the sale of proprietary medicines as a whole?

A majority of those answering believe the publication of the formula on the label would either have no effect on the sale of proprietary medicines, or would tend to increase their sale, since the principal condemnation of package remedies has been based upon the secrecy of their composition.

(2) Will the publication of the formula on the label be likely to change the legal responsibility of retail dealers, who have hitherto been declared by the courts

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[3] Numerous members of the association have been requested to give the Commission the benefit of their advice. These answers will be given in full in a supplemental report. It is proposed to continue the discussion throughout the coming year.

not to be responsible for damage resulting from the use of proprietary medicines concerning the composition of which they were uninformed?

The respondents generally believe that a statement of the ingredients on the labels of package remedies would have the effect of making the pharmacist responsible for damage resulting from their use, in view of the fact that the courts have hitherto held them not to be responsible for the sale of remedies of which they did not know the composition.

(3) What benefit would the public derive from the publication of the formula of a proprietary medicine on the label?

There is a difference of opinion as to the benefit the purchaser would derive from reading the formula. Some believe he would be benefited because it would give him the opportunity of "reading up" on the drugs mentioned. Others, perhaps a majority, believe that the purchaser would either pay no attention to the printed formula, or, if he did, would be inclined to experiment with combinations of his own.

(4) If the formulas of proprietary medicines are not published, can the public be protected against fraud or injury by a proper system of inspection and analysis?

The answers are nearly evenly divided as to the sufficiency or insufficiency of inspection and analysis as a means of protecting the public against fraud perpetrated under the cover of secrecy.

(5) Instead of the requirement of the publication of all active ingredients as above stated, would it be advisable to require simply a statement of certain potent drugs, or of those deemed to be so active that the purchaser should be informed of their presence?

A majority of the answers seem to favor the publication of active or potent ingredients in preference to publication of the entire formula.

(6) If you believe the last proposition to be preferable to the publication of the complete formula, what definition would you propose for potent drugs; or, instead of a definition, what list of drugs would you propose for statement?

No list of potent drugs to be stated has been proposed to the Commission.

One answer favors the definition of potent drugs proposed by the Voluntary Conference for the drafting of a Modern Pharmacy Law.

(7) If you favor neither of the two main propositions above stated, namely, publication of the entire formula, or of potent ingredients only, what are your views as to a law requiring the communication of the active ingredients to some official bureau authorized to pass upon or approve or disapprove preparations offered for sale generally to the public?

The answers are almost unanimously opposed to the proposition to require the communication of the active ingredients to an official bureau authorized to pass upon, and either permit or forbid the sale of package remedies.

(8) If you approve the last proposition, would it be possible to draft a law that would prevent unreasonable condemnation of formulas by the official bureau, or to prevent sectarian prejudice from influencing its determinations? For example would a board composed of "old school" or regular physicians be inclined to pass or reject a Homeopathic remedy for rheumatism upon a statement of its contents?

A majority of the answers maintain that it would be impossible to provide a board or bureau that would be free from prejudice or that would not be likely to condemn the peculiar remedies of rival schools of medicine.

(9) Should such a bureau be composed of physicians exclusively or should pharmacy be represented in the membership, and to what extent?

A majority of those who have answered believe that such a bureau, if established, should have practical pharmacists among its members. One answer maintains that the inclusion of pharmacists on such a board would not improve its composition.

(10) Should a bureau charged with the duties above specified be municipal, state or national?

While a majority oppose the bureau idea altogether, they would regard a federal board as the least objectionable of the three.

It is the design of the Commission to take counsel with the entire membership of the Association upon the questions submitted before finally formulating its proposals for approval by the Council.

False Advertising the Basic Evil of the Package Medicine Business.—In its last report the Commission expressed the opinion that the greatest evil connected with the package medicine industry has been the falsity and extravagance with which its products have so frequently been exploited, and that many meritorious package remedies exist concerning which no criticism can be offered except as to the methods employed in their exploitation.

The Commission has not since discovered facts or arguments that would cause it to modify that opinion. It still believes that the enforcement of truth in advertising is the proper correction of the present evils in the package remedy business, and that except in so far as they may contribute to this end all other proposed plans of regulation will be futile.

Respectfully submitted,

The Commission on Proprietary Medicines,

Martin I. Wilbert, Washington, D. C.,
John C. Wallace, New Castle, Pa.,
Chas. Caspari, Jr., Baltimore, Md.
Thomas F. Main, New York, N. Y.,
Jas. H. Beal, *Chairman,* Urbana, Ill.

Atlantic City, September 5, 1916.

THE COMMISSION ON PROPRIETARY MEDICINES.

SUPPLEMENTAL REPORT FOR 1915–1916.*

In the formal report of the Commission for 1916 reference was made to a questionnaire conducted for the purpose of obtaining expressions of opinion regarding the proposition to require the publication of formulas upon the labels of package remedies distributed to the general public, and also regarding certain other propositions for the control of such preparations. This questionnaire it is proposed to continue during the present year.

Below are given the answers returned by M. I. Wilbert and Thos. F. Main, of the Commission; Frank H. Freericks, Hugh Craig, Editor of the *Journal of the National Association of Retail Druggists;* Eugene G. Eberle, Editor of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION; W. H. Cousins, Editor of the *Southern Pharmaceutical Journal,* and Ervin F. Kemp, Editor of *Standard Remedies:*

(1) Will the open formula, *i. e.,* publication of the active ingredients on the label, be likely to increase or decrease the sale of proprietary medicines as a whole?

M. I. WILBERT: The publication of the formula of active ingredients of package medicines, as demonstrated by actual experience, is designed to increase rather than decrease the sale of proprietary medicines.

THOS. F. MAIN: This is problematical and there appears to be no reliable data on this subject. A few retail pharmacists whom I have consulted do not believe sales would be affected either way. My own thought is that the open formula would result in an increase in the *manufacture* of proprietary medicines, as in the event of a preparation with published formula meeting with large sale, many other preparations made according to the same formula or differing in some slight particular, would be placed upon the market with hope of participating in the popularity of the original product and such preparations would without doubt meet with some sale.

FRANK H. FREERICKS: In my opinion the publication of *Active Ingredients* will have no appreciable influence to increase or decrease the sale of proprietary medicines, where such preparations have any merit. It may depend somewhat upon how complete the requirement for publication is made. It, of course, would have an immediate tendency to do away with preparations which have no real medicinal value, and which could show no real active ingredients. Freedom of claim with reference to special manipulation in the preparation of proprietaries and of combination with less active constituents would offer sufficient scope for the use of "printer's ink" on the part of manufacturers, so as to fully protect their legitimate interests.

HUGH CRAIG: Such publication, of itself, and wholly apart from any and all incident and consequent influencing factors, would tend to increase the sale of proprietary medicines as a whole, because, first, the majority of such medicines contain one or more ingredients that are, popularly at least, credited with virtue in the condition for which a particular preparation is offered—just so does the name, "Sarsaparilla," or "White Pine and Tar," and the like, indicate certain medicinal usefulness and inspire belief in efficacy; and, secondly, the bugaboo of secrecy, the mystery of the feared unknown, and the belief in the weird tales of "dope"-laden and "booze"-filled concoctions will be shattered.

EUGENE G. EBERLE: I would say that in my opinion the sale of proprietary medicines would not be decreased. Probably the sales of some proprietaries would be increased because there has been a growing doubt relative to constituents in proprietaries, and this doubt would be removed by the publicity and confidence strengthened. There would temporarily be an increasing number of proprietaries in imitation of those advertised.

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* Presented and approved at the Sixty-fourth Annual Meeting of the American Pharmaceutical Association, Atlantic City, 1916.

W. H. Cousins: From my long experience in the retail drug business, I do not believe that the publication of the formula of a proprietary on the bottle would affect the sale of a remedy materially. I have found that most people who buy remedies for self-medication, do so because of the recommendations of friends or because the remedy has given relief on former occasions.

I feel safe in saying that ninety percent of the buyers of proprietary remedies do not know what they contain, neither do they care. The sale of a proprietary depends on the effect it has on the ailment for which it is recommended, and not on what it contains. The publication of the formula might have the effect of breaking down a made-to-order prejudice against proprietary remedies created by those whose interests self-medication antagonizes, in that the formulæ would show the preparations incapable of producing disastrous results (long lists of dead babies, feminine alcohol wrecks and narcotic fiends) popularly charged to them. However, we do not believe that the effect would be noticeable, because, according to statistics compiled by the National Wholesale Druggists' Association, the sale of proprietary remedies by the wholesale druggists of the country has shown a very small variation from 1899 to 1914. The chairman of one of the committees of the Association reported that in 1899 proprietaries constituted 54 percent of the wholesale druggist's business, in 1904, 56 percent, 1909, 53 percent, 1914, 53 percent. This shows that the enactment in 1906 of the Food and Drugs Act, which required that if certain drugs were used, the name must appear on the label, had a small effect on the sales of proprietary remedies.

Ervin F. Kemp: In my judgment the publication of active ingredients, presumably upon the label, or the carton, or both, would neither increase nor decrease the sales of proprietary medicines taken as a whole. It is objectionable, however, from another standpoint (see answer to No. 3).

(2) Will the publication of the formula on the label be likely to change the legal responsibility of retail dealers, who have hitherto been declared by the courts not to be responsible for damage resulting from the use of proprietary medicines concerning the composition of which they were uninformed?

M. I. Wilbert: The publication of the formula would, as it properly should, place an added responsibility on the retail dealer in that it would be expected of him that he inform himself in regard to the probable usefulness of the several so-called active ingredients.

Thos. F. Main: A legal question which a layman can scarcely answer with authority. It would appear, however, that in the unlikely event of a preparation containing "cyanide of potassium" for instance, it would be the duty of the druggist to caution purchasers in regard to it.

Frank H. Freericks: In my judgment publication of formula as above indicated, will not add to the legal responsibility of retail dealers, so long as they merely continue to supply the demand for such preparations, and do not undertake to recommend them. Of course, if they are asked for advice with reference to the therapeutic effect or value of some ingredient, their advice must be correct, but this is equally the case with reference to anything else which they may sell and regarding which they are asked for advice and should be prepared within their province to give advice. Even in that connection they can be held only to the use of ordinary care in giving advice, and if they desire they can refuse to give advice. Of course, if proprietary preparations should be poisonous in the commonly accepted sense of that word, then they would be required to take the precautions which are prescribed for the sale of poisons, but such contingency is not apt to cause the least difficulty, for even without disclosure of formula, the manufacturer of to-day will label real poisons as such, and thus imposes a like duty on the retail dealer. Broadly speaking, there will be no added legal responsibility on the part of the retail dealer in the sense that I understand the question. Of course, any legislation requiring publication of formula should place the burden of complying with the requirement altogether upon the manufacturer.

Hugh Craig: Undoubtedly, the pharmacist, or other seller, would be held responsible. This, in turn, might be conducive to the restriction of the sale of proprietary medicines to qualified persons, that is, pharmacists or assistants.

Eugene G. Eberle: My answer is that there would be added responsibility, and to what extent, may develop into an important question. Heretofore there has been no definite knowledge of composition and with the information given, the seller's responsibility is bound to be greater.

W. H. Cousins: I believe the publication of the formula would increase the legal responsibility of the retail dealer, at least to the extent to which he is now responsible in the sale of drugs and chemicals or preparations the constituents of which are known to him. He would assume the responsibility that the courts have held belongs to the manufacturer of secret formula remedies.

Ervin F. Kemp: Not being an attorney I do not feel that I could add anything to a discussion of a purely legal proposition.

(3) What benefit would the public derive from the publication of the formula of a proprietary medicine on the label?

M. I. Wilbert: The public would be adequately protected by publication of the formula in that the consumer of the medicine would be given an opportunity of safeguarding himself against possible untoward action.

Thos. F. Main: Really none; although it would perhaps satisfy the curiosity of a few. There is no argument favoring the publication of formulas on packages of proprietary medicines that would not apply to a proposition to compel physicians to write prescriptions legibly and in English, and the pharmacist to copy the same upon the label of the prescription he compounds. Physicians have hitherto opposed this, largely on account of the psychological effects that might be produced on the patient.

Frank H. Freericks: By publication of the formula limiting this to the active constituents, the public will derive great benefit in that, first, it may know whether a preparation really has active ingredients, and secondly, that it may be able to secure the advice of qualified people as to the therapeutic effect and value of such active ingredients as may be named, and in that, thirdly, this opens the way for frequently guarding against the improper use of medicines, and fourthly, in that it opens the way for confining the sale and distribution of medicines to qualified people.

Hugh Craig: In considering the effect of such formula disclosure upon the public, it is necessary to heed a factor that would have an adverse influence upon the effect opined in the foregoing reply to *Question No. 1*; that is the fact that, in his glad possession of a little therapeutic knowledge, the lay person would be strongly inclined to prescribe one or more ingredients of a proprietary formula for his own and his neighbor's ailments, and to call upon the pharmacist to furnish the components of, or to prepare to order, a suitable—or what to the inquirer might appear to be a suitable—dosage form of the selected drugs. This, of course, would *not* be a benefit to the public (unless the fool-killer be regarded as a public benefactor) even with the fullest exercise of caution by the pharmacist. In addition, it may be averred that not even the lay mind, with no appreciable knowledge of exact or clinically proven therapeutic properties, would be wholly free from the psychological effect of doubt, and, even though led by this doubt to turn to a physician for treatment, the lay person could see the similarity of, for instance, "potassium iodide," in a printed formula and "Potass. Iod." on a prescription and would not escape the untoward effect of the psychological phase of the partly understood medication. To offset this there must be considered the beneficial effect of knowing that none of the muckraker's "dope" and "booze" is being taken. The question, whether fear of unknown "dope," or doubt sprung from little knowledge of therapeutic effect, is the more influential, lies in psychological depths beyond my fathoming. I know persons strongly influenced by each; not being a professional muckraker, I do not pretend to know the proportionate influence of the two throughout the human race or even the American fraction thereof. Aside from this psychological phase, the question of benefit has, for me, a negative answer, because of a firm belief that the little knowledge gained from a formula would lead to most dangerous excursions in the field of self-medication. For this reason *alone* I should object least—I speak from the consumer's point of view entirely—to a requirement that the complete formula should be given. If *any* knowledge would be beneficial, it is *full* knowledge of dose, form, and combination. Further, unless the statement be a quantitative one, there is ample opportunity for fraud in declaring the presence of a really valuable ingredient when it is present only in a minute proportion. This would obviously not be a benefit to the public.

EUGENE G. EBERLE: There would be a degree of protection. The public could study the constituents and secure information. How beneficial this would be, presents another question. Doubtless, however, there is some benefit even if it only substantiates or negatives a claim of the manufacturer, or disabuses the mind of the purchaser, or exposes the composition of worthless proprietaries. Many first and only single-bottle sales of the latter would not be made. This constitutes quite a waste of money by those who buy patents and can ill afford to experiment. Perhaps they are experimenting as much as ever but they have had a chance, whatever its value may be. Honest manufacturers, and I am frank to admit I believe there are those among manufacturers of proprietaries, would be benefited. The general charge of worthlessness and shady purposes could be disproved.

W. H. COUSINS: The public would receive no benefit whatever from formula disclosure and would run the risk of being harmed by it. There seems to be an irresistible fascination for some laymen in mixing their own medicine. This is demonstrated by the newspaper prescriptions that tell him to go to the druggist and get so much of this and so much of that, place them in a bottle and add a certatin amount of something else to make an elegant preparation for a certain ailment. If the layman finds that the virtue of Jones' Blood Remedy is in the potassium iodide that it contains, he is likely to prescribe potassium iodide with a free hand for his friends, with disastrous results.

ERVIN F. KEMP: The public would derive no benefit whatever. It would, if anything, be injured. The arguments advanced by physicians against plainly written English prescriptions, copied to the label of the bottle containing the medicine, applies equally to proprietary medicines. It is wrong in principle in either case.

There is another and more sordid reason why publicity of this kind would tend to be injurious to the public. Doubtless unscrupulous manufacturers would be stimulated to make preparations having identical or practically identical ingredients, which preparations might differ greatly in composition and physiological effect from the original preparations, but which might be held out to the public as the "same as" a preparation with which the public is familiar. A valuable and, say expensive ingredient, upon which a remedy might largely depend for its effect, might be present in the imitation article in such minute quantity as to be of no effect, yet neither the retailer nor the public would have means of ascertaining this fact, and the label statements of the two preparations would be identical, thus promoting fraud and the opportunity for fraud.

(4) If the formulas of proprietary medicines are not published, can the public be protected against fraud or injury by a proper system of inspection and analysis?

M. I. WILBERT: No conceivable system of inspection and analysis could adequately protect the public against fraud and injury.

THOS. F. MAIN: Yes, and the public is more fully protected at the present time than ever before by the existing national pure food and drugs and antinarcotic laws and the laws against fraudulent advertising in the several states.

FRANK H. FREERICKS: If formulas are not published the public might be protected to a certain extent against fraud and injury by proper inspection and analysis, but the public never will be properly protected along that line, for it is not likely that sufficient means for proper inspection and analysis will ever be available, and such proper inspection and analysis will never offer the means of guarding against incorrect and improper use in everyday practical life.

HUGH CRAIG: Such a means of protection would be possible, but the qualifying "proper" will prove a very firmly fixed stumbling block, in view of the customary procedure in all attempts at inspection and regulation.

EUGENE G. EBERLE: Considering both the public and the manufacturer, I doubt whether a system of inspection and analysis would prove satisfactory and in reality a protection.

W. H. COUSINS: It certainly can and has better protection to-day than ever before. I believe the public is more fully protected on proprietary remedies than on the U. S. P. and N. F. preparations made in many drug stores.

ERVIN F. KEMP: Yes and no. The public is doubtless protected to a considerable extent by the inspection of government and state officials empowered under National and State Food and Drugs Acts, National and State narcotic laws, postal laws, advertising laws, etc., but so far as my knowledge goes no analysis made either by government or state officials has been exact, or so nearly so as to be worth anything; and I have no reason to believe that an analysis can be made of a compound medicinal product that will be valuable because of its exactness, or approximate exactness.

In spite of the well developed system of inspection and analysis we still have the fact of narcotic leakage, of unauthorized manufacture and sale of intoxicants, etc., and to a lesser extent the adulteration of foods and drugs, and their misbranding, all to the injury of the public. Fraud, while it may be curbed, probably never can be eliminated by either inspection or analysis, especially if the latter is inexact as has almost invariably been the case where compound medicinal products have been involved.

(5) Instead of the requirement of the publication of all active ingredients as above stated, would it be advisable to require simply a statement of certain potent drugs, or of those deemed to be so active that the purchaser should be informed of their presence?

M. I. Wilbert: A statement regarding certain potent drugs is required at the present time under the Food and Drugs Act, and while this requirement has been of tremendous advantage, it is altogether inadequate unless practically all active medicines are included in the list of potent drugs.

Thos. F. Main: This appears to be the ideal proposition.

Frank H. Freericks: By the term "active ingredient" I understand "potent drugs" not necessarily dangerous, but of active medicinal value in comparatively small doses when in original form.

Hugh Craig: In the light of the judicial interpretation of "derivative" in the "Antikamnia" case, the federal food and drugs act and the state acts patterned thereafter cover a sufficiently wide field of potent drugs. As I see it, the purpose of formula disclosure should be not so much to indicate the presence of any certain drugs as to show the absence of such as might be useful. If the presence of but certain drugs is required to be indicated there will be opportunity for the unscrupulous manufacturer to make capital of the fact that his preparation contains none of the proscribed drugs—and such a limited provision would, in truth, be a proscription—and his preparation might contain nothing of the least value. The Sherley amendment is not omnipotent.

Eugene G. Eberle: I regard formula disclosure not only a source of information for the prospective user relative to drugs contained, but those conspicuously absent, or only present in sufficient quantity to advertise the fact that the proprietary contains the lauded constituent. When there is a change in the composition of the proprietary, the self-healer should know it. Some proprietaries have in late years changed to the extent of adding purgatives and emetics.

W. H. Cousins: I believe the present laws cover the ground sufficiently. Narcotic drugs are provided for in the Harrison Law, and the Food and Drugs Act requires a statement of the presence of certain potent drugs. So far as absolute protection is concerned, it is impossible to protect the public from the dangers of over-dosage, and disregard for directions. Proprietary manufacturers are no more anxious to ruin the reputation of their preparations or to face suits for damage than are physicians. The above mentioned danger from over-dosage or disregard of directions applies to physicians' prescriptions.

Ervin F. Kemp: As I understand the question this is accomplished, in part, by the provisions of the Food and Drugs Act of June 30, 1906. I have always been exceedingly skeptical of the benefit that has been derived by the public from this particular feature of the law. I do not believe that the slightest good to the public would be derived from extending the list of drugs whose presence must be revealed.

(6) If you believe the last proposition to be preferable to the publication of the complete formula, what definition would you propose for potent drugs; or, instead of a definition, what list of drugs would you propose for statement?

M. I. Wilbert: A satisfactory list of potent drugs would have to be very comprehensive indeed, and would require provisions for addition from time to time.

Thos. F. Main: The drugs that are enumerated in the pure food and drugs and anti-narcotic laws, which with the *"minimum requirements" proposed by our Commission in its report of last year,* would appear to fully protect the public without requiring the enumeration of a long list of drugs such as is contained in the Canadian Proprietary or Patent Medicine Act.

Frank H. Freericks: The best attempt at a definition with which I have yet come in touch is the one found in the report of the Voluntary Conference to draft a Modern Pharmacy Law under the auspices of the A. Ph. A., Section on Education and Legislation, as published in one of the late issues of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. No doubt further study will permit great improvement, but it seems to me that the attempt therein shown must be the correct basis for such a definition.

Hugh Craig: This subject is covered in the first sentence of the preceding reply. (Answer to question No. 5, Mr. Craig.)

Eugene G. Eberle: A list would have to be very comprehensive and added to from time to time. Potency is not only a relative term, but subject to differences of opinion; for example, the most active homeopathic arsenic attenuation, and a grain of arsenic in a 16-ounce mixture of which the dose is a teaspoonful. It seems to me that impotent, nonpotent, or inactive medicinal constituents should not be concerned. The answer depends largely on whether the disclosure of the formula is to be considered a protective measure only, or for education and information.

W. H. Cousins: See No. 5.

Ervin F. Kemp: I pass this question.

(7) If you favor neither of the two main propositions above stated, namely, publication of the entire formula, or of potent ingredients only, what are your views as to a law requiring the communication of the active ingredients to some official bureau authorized to pass upon or approve or disapprove preparations offered for sale generally to the public?

M. I. Wilbert: The requirement that active ingredients of the preparations be communicated to some official bureau to pass upon or approve or disapprove, is vicious, inadequate, and not in keeping with the spirit of American institutions.

Thos. F. Main: I do not believe in it, first, because of the difficulty of securing men with the necessary medicinal and pharmaceutical knowledge and with judicial minds; second, in order to safeguard the rights of the individual there would have to be a provision subjecting the decision of such a bureau to a reviewal by the courts.

Frank H. Freericks: The publication of potent drug content will in my opinion sufficiently safeguard the public interest. I have absolutely no confidence in an official bureau authorized to approve or disapprove. The public would not be helped one particle, and the chances are that it would be made to suffer because of abuse of authority on the part of such bureau, or because of misplaced confidence because of the approval of the bureau. I do not want to be understood as saying that a really worth while bureau could not be created, but I have no confidence in its creation.

Hugh Craig: Such a requirement is, under existing conditions, the least meritorious of the three; but it has possibilities well worth the most careful consideration.

Eugene G. Eberle: I do not believe it expedient.

W. H. Cousins: The bureau idea is a vicious one that smacks of despotism. Authorities agree like cats and dogs on the therapeutic efficiency of drugs. Interests would be represented on such a bureau that would be best served if the manufacture and sale of proprietary remedies were stopped. It would mean continual warfare between two opposing forces.

Ervin F. Kemp: Aside from the objection to it as an un-American proposition, it presents what, in my judgment, are insurmountable obstacles. The field of medicine is one of theory and opinion, and not one of fact; there is no science of therapeutics, but such a proposition presupposes that there is; and that there is, or might be established, a standard of therapeutic effectiveness which could be enforced. There being no such standard, and no science upon which to base one, such a bureau would be at sea without rudder or chart, with nothing but its prejudices to guide it; and its conflicting opinions, backed by a semblance of authority, would, in my judgment, only tend to further complicate matters.

If—and I underscore the "if"—a board of broad-minded and learned scientists, charged with impartial investigation should also be charged with a duty to commend as well as condemn finished products submitted to it—and such a board could be secured; *if*—and I again emphasize the "if"—such a board could be started out free, and kept free from the domination of the clique of "school," and *if* the examination was of a complete product and not of its component parts separately, and such examination was of the therapeutic properties of the completed article as a separate substance, it might be a step in the right direction.

Knowing, however, the practical impossibility of securing such a personnel and such a motive, I am strongly of the opinion that the establishment of a bureau as outlined in the question would be vicious from all standpoints—including especially that of the public.

(8) If you approve the last proposition, would it be possible to draft a law that would prevent unreasonable condemnation of formulas by the official bureau; or to prevent sectarian prejudice from influencing its determinations? For example, would a board composed of "old school" or regular physicians be inclined to pass or reject a Homeopathic remedy for rheumatism upon a statement of its contents?

M. I. WILBERT: I cannot conceive of the composition of any Board or Bureau that would prove to be satisfactory in all respects.

THOS. F. MAIN: I think it very doubtful.

FRANK H. FREERICKS: My answer to question 7 also answers 8–9 as well as question 10.

HUGH CRAIG: The drafting of such a law would be difficult but not impossible; but its enactment would scarcely be practicable—and its equitable enforcement would be less nearly so. As long as therapeutic opinion is to be regarded as fact, as the Supreme Court of the United States has decreed, and as the weight of opinion would be the determining factor, it would practically be necessary to designate certain authorities in regular, homeopathic, and eclectic medicine as the absolute standards so as to preclude the influencing of the findings of the board by the individual opinions of its members. I have sometimes favored judicial benches of persons trained in chemistry, medicine, and the like; but, unless such a judicial body were guided by fixed standards rather than by personal opinion, it would be far less efficient than the present judiciary which must weigh the mass of opinion presented before it. The opinion of the hired expert should no more determine therapeutic value as an actuality than it should define murder, albeit the questions of fact must necessarily be left to the board as the facts in an allegation of murder are left to the judge and jury. The great question is: Who shall determine the standards? Shall they be determined by the body that is to apply them to the standardization of therapeutic products? Pharmacists themselves are so standardized; so are food products and certain drug products under the federal food and drugs act. Shall they be selected from the findings of independent bodies as is now the case with official drug products under food and drug statutes? The first method would appear to be the more feasible because of the necessity of passing upon unstandardized drugs and upon additions to the materia medica. In this case, it would be quite impracticable to wait ten or twelve years for the deliberation of a standardizing body. But feasibility and reliability would, in this connection, be as wide apart as the poles unless ideal conditions were attained in the selection of the board.

W. H. COUSINS: I cannot imagine a board that would be fair to all concerned.

E. F. KEMP: See answer to No. 7.

(9) Should such a bureau be composed of physicians exclusively or should pharmacy be represented in the membership, and to what extent?

M. I. WILBERT: The inclusion of pharmacists on such a board would not improve its composition.

THOS. F. MAIN: While opposed to the idea of a board to pass upon proprietary medicines, I believe that any board designed to act upon matters concerned with both medicine and pharmacy should consist of both physicians and pharmacists in equal numbers, both physicians and pharmacists to be men of good repute and who have been successful in the practice of their professions. In other words, I mean the board should be composed of practical men and not theorists.

HUGH CRAIG: Such a board should be equally representative of *every* branch of medicine as a *whole* profession, but of no branch as a commercial pursuit, despite the obvious assistance of the research laboratory of the manufacturer—if such could be had without bias. The presence of pharmacal representatives is absolutely necessary in view of the lack of knowledge of even therapeutic incompatibility on the part of physicians—to say nothing of the vocational phases of the question. I know of an instance where it was necessary for a pharmaceutical chemist, called in an advisory capacity, to point out with care to a manufacturer of pharmaceutical specialties that in filtering a preparation of cod-liver oil he was removing every trace of the oil. Practical experience in medicine and pharmacy of the every-day sort should be a qualification of every member of such a board, and every member should be paid for his full time and be free from all connection with other medical or professional engagements for profit. In passing it might be stated as of interest, that in Chosen there is a class of medico-police officers known as medical supernumeraries or something such, who are specifically prohibited from engaging in any way in the sale of medicines—and so are the members of their families.

EUGENE G. EBERLE: If such a board is established, pharmacy should have equal representation with physicians. There should also be other men of science, as chemists, physiologists, etc., on the board. Essential qualifications should be, a number of years of successful practice in their respective professions and arts.

W. H. COUSINS: Would you select a German jury with a view to giving a Frenchman justice?

ERVIN F. KEMP: No board would be representative unless it included pharmacists, therapeutists, diagnosticians, toxicologists, etc., including representatives of the commercial interests involved.

(10) Should a bureau charged with the duties above specified be municipal, state or national?

M. I. WILBERT: Such a bureau would be equally objectionable whether it be municipal, state or national.

THOS. F. MAIN: National by all means, as attempts by municipal or state laws to legislate on subjects of national importance usually result in unjustifiable interference with business at a great cost either to the trades concerned, or the state or municipality without corresponding benefit to the general public.

HUGH CRAIG: A federal bureau or board would be less objectionable than fifty varieties of state bodies or a thousand varieties of municipal bodies with an equal variety of standards and modes of procedure. Unless some form of incidental taxation be devised. it is obvious that the powers of a federal body would be limited. There might be devised some sort of non-mandatory plan of registration and certification somewhat similar to the patent or copyright plan, as a supplement to an interstate prohibitory regulation. The effect of this would, of course, reach the manufacturer indirectly, as does the effect of registration under the federal food and drugs act—the public *is* suspicious of the products of the unregistered manufacturer, no matter what may be the official attitude toward the guaranty legend and the serial number.

EUGENE G. EBERLE: If established, should be a federal board.

I think it wise if consummation of formula disclosure would come gradually, although, in my opinion, those proprietaries that really have merit would not suffer because of formula disclosure. It would certainly give officials a better opportunity for investigation.

W. H. COUSINS: If such a calamity should come, let it be National.

ERVIN F. KEMP: If a national bureau would be objectionable, as it would be, except under practically impossible conditions, state and municipal boards would certainly be insufferable. A national board, even if it did not meet all of the ideal requirements would greatly be preferred to state and municipal bureaus, boards or commissions, which would only multiply confusion at a time when clearness is most to be desired.

THE REASONS FOR SOME OF THE CHANGES IN THE FORMULAS OF GALENICALS MADE IN THE NINTH REVISION OF THE UNITED STATES PHARMACOPŒIA.*

BY GEORGE M. BERINGER, PH.M.

Compliance with the legal standards, if there were no other reason, would necessitate a study of the changes made in the Ninth Revision of the Pharmacopœia. As my assignment in the symposium of this evening has been restricted primarily to Extracts, Fluidextracts and Tinctures, I will, necessarily, limit my remarks very largely to the changes made in the formulas for certain of these galenical preparations. To the pharmacists these are of the first importance and the users of the book should certainly understand why the changes have been made.

While the reasons for some of the changes may be apparent, the writer is aware, from the criticisms and queries propounded, that the reasons for many of these are not generally understood. Hence, it appears that this phase of the subject is worthy of special consideration and that an explanatory paper on pharmacopœial changes, even though it may sound elementary to some of my hearers, may not be an undesirable subject to present to this audience and, at the least, it may be of some assistance to students.

The changes in the titles of fluidextracts, extracts and tinctures have not been very numerous or important. The changing of the title Fluidextractum Rhamni Purshianæ to Fluidextractum Cascaræ Sagradæ was in recognition of the almost universal practice of physicians in using the latter title. The custom of physicians in prescription writing not infrequently determines changes in pharmacopœial titles.

The adoption of cardamom seed instead of cardamom fruit necessitated a reduction in the amount of cardamom directed in several of the formulas, such as Compound Extract of Colocynth, and in Tincture of Cardamom and Compound Tincture of Cardamom, as the inert capsule is eliminated.

Economic reasons at times have decided changes. An instance of this is seen in the official oleoresins, which, with the exception of Oleoresin of Cubeb, are again directed to be made with ether as a solvent instead of acetone. In the Eighth Revision, acetone was directed in place of ether, because at that time the former was cheaper. As it is now permissible to use denaturated alcohol in the manufacture of ether, that solvent is made so cheaply that it is again advantageous to use it in place of acetone.

One of the most noteworthy advances in the present revision has been the adoption of introductory chapters and the classifications and type processes given under Fluidextracts and Tinctures, thus saving a number of pages in the book and avoiding the unnecessary repetition of instructions. It is hoped that this attempt at condensing formulas will prove satisfactory and may be still further extended in future revisions.

The popularity and extensive use of powdered extracts required pharmacopœial recognition of a number of extracts in this form. Among these may be mentioned powdered extracts of Aconite, Belladonna Leaves, Colchicum Corm, Gelsemium, Hydrastis, Rhubarb, Stramonium and Viburnum Prunifolium. In addition, Purified Oxgall is now official in the form of a powdered extract, and this class of powdered extracts will probably be added to in the future revisions.

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* Read at the meeting of the Philadelphia Branch of the A. Ph. A., November 14, 1916.

The sub-committee recommended that a distinct class of Pulvextracta should be made so as to distinguish these from the pilular extracts. The conservatism of the General Committee of Revision, however, decided that the pilular or solid extracts and the powdered extracts should not be separated but all retained under the one class of Extracta and that in the monographs where both forms were recognized, the formula for the pilular extract should precede that for the powdered extract.

The preparation of powdered extracts presented some worrisome problems for the consideration of the sub-committee. In order to obtain a concentrated extract freed as far as possible from mucilaginous and gummy extractives, so as to permit of powdering and dilution in the form of a permanent powder, higher alcoholic menstruums had to be adopted than were required, as a rule, for the pilular extracts. Where the drug contained any appreciable amount of oil or fat it was found that this had to be removed before a satisfactory powdered extract could be produced. Hence, in the Powdered Extracts of Aconite Root, Colchicum Corm, Nux Vomica and Physostigma, purified petroleum benzin extractions had to be made to remove the fat, and in some cases, the recovery of the alkaloid from the benzin solutions became necessary. These added manipulations complicated somewhat the processes.

The standardizing of potent galenical preparations, wherever possible, is now an established principle in our Pharmacopœia, and the Ninth Revision has carried this out more fully than heretofore. In the Extracta, this presented to the committee the problem of selecting proper diluents by which concentrated extracts could be reduced to the standard adopted. Our experiments led to the adoption of powdered starch dried at 100° C. or, in some cases, a mixture of powdered and dried starch and magnesium oxide as the diluent for powdered extracts. In the introductory chapter on Extracts, however, permission has been given to the manufacturers to use other inert diluents, such as sugar, sugar of milk, powdered glycyrrhiza, magnesium carbonate or the finely powdered drug or marc from which the extract was made. A satisfactory diluent must be inert from a therapeutic standpoint, as well as chemically. It is difficult to select one substance that will prove pre-eminently satisfactory for all of the extracts. The committee had some difficulty in coming to a conclusion as to the proper diluent to recommend for reducing the standardized solid extracts. The final selection was glucose, as possessing the requisite qualification of being inert. Yet this has not proven altogether satisfactory and it may be possible that some other substance may yet be proposed as a substitute for glucose, and suggestions in this respect are invited.

The selection of a proper menstruum for each extract likewise required considerable experimentation. The U. S. P. VIII directed that Extract of Belladonna Leaves be made with a menstruum of two volumes of alcohol and one volume of water. With many samples of the drug, the manufacturers found that if the drug were completely exhausted with this menstruum that the yield was large and the extract was deficient in alkaloidal content. Hence, in the U. S. P. IX, a stronger alcoholic menstruum has been directed, namely, three volumes of alcohol and one volume of water, so as to reduce the amount of extractive and permit of maintaining the alkaloidal standard.

Extract of Ergot, U. S. P. VIII, was a roundabout process copied after the British Pharmacopœia and yielded a small amount of extract associated with sodium chloride and at a very high cost. The committee was convinced that hydrochloric acid in proper proportion should be added to the alcoholic menstruum used in the extraction of ergot. Several of the samples of ergot worked with by the committee contained relatively large proportions of oil, and, unless this was removed, the resulting extract was granular and oily. Hence, in order to obtain a smooth and homogeneous product, the oil had to be removed from the ergot by purified petroleum benzin before it was percolated with the alcoholic menstruum.

In Pure Extract of Glycyrrhiza two changes are to be noted: The first is the use of chloroform water, following the initial menstruum a mixture of ammonia water and water, to complete the exhaustion of the drug. The purpose of the chloroform water is that decomposition in both the drug and in the percolate before concentration, which is prone to take place in warm weather, may be prevented. The second change is the omission of the five percent of glycerin which was directed in the Eighth Revision. Experience has shown that pure extract of glycyrrhiza made with this small amount of glycerin is apt to become moldy. This is possibly due to the percentage of glycerin being insufficient to act as a preservative, and in this dilution it actually serves to provide a suitable field for the culture of molds.

A small percentage of tartaric acid was found to aid materially in the exhaustion of hydrastis. Hence, in the Powdered Extract of Hydrastis, 5 grammes of that acid is directed for each 1000 grammes of drug extracted.

In the U. S. P. VIII formula for Extract of Nux Vomica, the nux vomica was first exhausted with a menstruum of acetic acid and water, and the concentrated acetic extract then treated with alcohol. In the formula of the U. S. P. IX, the extraction of nux vomica is made with a mixture of three volumes of alcohol and one volume of water, which menstruum extracts the drug and yields an extract which when purified by the removal of the fat, appears to be entirely satisfactory.

Extract of Malt instead of being directed to be evaporated "to the consistence of thick honey," which is not at all definite, is now directed to have a specific gravity of not less than 1.35 nor more than 1.40.

The fluidextracts recognized in the U. S. P. are, in number, greatly in excess of those recognized by any of the other pharmacopœias. In the endeavor to improve on the U. S. P. VIII formulas, the sub-committee made several hundred experiments, trying various menstruums and methods of manipulations. For the first time in the revisions of the U. S. Pharmacopœia, fractional or divided percolation is directed. This process, Type Process C, is now not only permissible, but is officially directed to be employed in the fluidextracts of Aconite, Aromatic Powder and Bitter Orange Peel.

The type samples prepared by several of the committees which had worked with this class of preparations in the previous revisions had been preserved and reports on these were secured. The original samples, wherever available, were carefully inspected and the changes both in amount and character of precipitate noted. The experiments led to the adoption of a number of changes in the menstruums directed and, for several, entirely new formulas were introduced.

In the following fluidextracts an increase in the alcoholic strength of the menstruum directed is to be noted: Bitter Orange Peel, Belladonna Root, Buchu, Guarana, Hyoscyamus, Pilocarpus, Podophyllum, Sarsaparilla, Staphisagra, Sumbul and Uva Ursi.

Numerous complaints showed that it was practically the universal opinion that in the Fluidextract of Buchu of the Eighth Revision, the menstruum of three volumes of alcohol and one volume of water was incorrect, and alcohol is now directed.

A reduction in the alcoholic strength of the menstruum is to be noted in the following fluidextracts: Gelsemium, Ipecac, Senna and Triticum.

The U. S. P. VIII directed that Fluidextract of Cascara Sagrada should be made with a menstruum of four volumes of alcohol and six volumes of water. Our knowledge of cascara sagrada and its constituents now permits us to direct the extraction of the drug with hot water and the addition of the alcohol to the concentrated aqueous percolate as a preservative only. This improvement has been made in both the fluidextract of cascara sagrada and in the powdered extract, in both of which the extraction of the drug is directed to be made with water.

The Aromatic Fluidextract of Cascara Sagrada of the U. S. P. VIII was criticized in several respects. First, the attempt to extract the glycyrrhiza along with the cascara sagrada by the use of magnesium oxide. The proper solvent for licorice is, beyond any question, ammonia water and the extraction of these two drugs should not be made together, as either magnesium oxide or calcium oxide is the required alkali for the extraction of cascara sagrada. The flavoring with compound spirit of orange was likewise criticized. In the formula directed in the U. S. P. IX, these objections have been met by directing the use of pure extract of glycyrrhiza and a change in the aromatics to a combination of the oils of anise, cassia, coriander, and methyl salicylate. Any slight tinge of bitterness remaining is drowned by the further addition of 1 gramme of saccharin to the 1000 mils of product.

In Fluidextract of Cinchona the addition of 100 mils of diluted hydrochloric acid to the menstruum was found necessary in order to exhaust the drug. Without this addition of acid, the resulting fluidextract failed to represent even approximately the total amount of alkaloid in official cinchona bark.

In Fluidextract of Colchicum Seed, while no change is made in the menstruum of two volumes of alcohol and one volume of water, some means had to be adopted to remove the oil which is extracted, possibly largely mechanically, and separates in the fluidextract. ~~Hence, in the formula for this fluidextract~~, the preliminary treatment of the drug with purified petroleum benzin is now directed.

The Digitalis preparations present an interesting study. It developed that in the preparations of digitalis containing a large percentage of water, deterioration rapidly takes place. Further, that the deterioration in the presence of acids was very much more rapid and that an acetic preparation of digitalis very soon lost its efficiency. This can be explained on the ground that digitalis contains glucosidal principals and likewise an acid constituent, and in aqueous or dilute alcoholic preparations a reaction takes place between these constituents by which the glucosides are decomposed. In the fat-free tincture of digitalis, the acid is neutralized and thus the increased permanency of this preparation is explained.

A material increase in the percentage of alcohol in the official preparations of digitalis was indicated and the fluidextract instead of being directed to be made with a menstruum of diluted alcohol, is now directed to be made with a menstruum of five volumes of alcohol and one volume of water. For the same reason, the alcoholic strength of the tincture has been increased by the use of a menstruum composed of three volumes of alcohol and one volume of water in place of diluted alcohol.

In Fluidextract of Ergot, the U. S. P. IX has returned to the recommendation of Dr. E. R. Squibb and directs in the menstruum the use of 20 mils of hydrochloric acid in place of 20 Cc. of acetic acid of the U. S. P. VIII.

In the Fluidextract of Frangula, the similarity of this drug to Cascara Sagrada has suggested that the same method of preparation should be adopted for both fluidextracts and this was found to be entirely feasible. So Fluidextract of Buckthorn Bark is now directed to be made by hot aqueous percolation and the alcohol added to the concentrated infusion as a preservative only.

In the Fluidextract of Glycyrrhiza, we note an entire change in the formula. The U. S. P. VIII directed the extraction of glycyrrhiza with boiling water, thus obtaining a large amount of inert matter which it was difficult to remove by the subsequent manipulation directed. The new formula directs the extraction of the drug with a menstruum of ammonia water and chloroform water; and completing the exhaustion with chloroform water. The first portion of the percolate is set aside as a reserve. The alcohol is directed to be added only as a preservative. The waste of this solvent in the previous formula is thus avoided.

In Fluidextract of Ipecac, the attempt has been made to produce a miscible fluidextract from which a syrup could be made by simple admixture instead of the roundabout process for the preparation of the syrup directed in the U. S. P. VIII. Instead of extracting the drug with a menstruum of three volumes of alcohol and one volume of water and obtaining in the product resinous and other inert materials which had to be precipitated out in the preparation of the syrup, the attempt was to produce by the use of a menstruum of diluted hydrochloric acid, alcohol and water, a miscible fluidextract. This appears to have been overlooked, however, in the Syrup of Ipecac, as the formula of the U. S. P. VIII has still been retained, and the syrup will unnecessarily contain acetic acid in addition to the hydrochloric acid.

In the Fluidextract of Lobelia, the menstruum formerly directed was a mixture of acetic acid and water. This is now displaced by a menstruum of acetic acid and diluted alcohol, which promises a stable and active preparation.

In the Fluidextract of Nux Vomica, the acetic acid directed in the U. S. P. VIII has been deleted from the menstruum, as a menstruum of alcohol and water in the proportion of three volumes of alcohol and one volume of water directed has been found to be satisfactory. Acetic acid dissolves from nux-vomica substances which later continue to precipitate and cause trouble in the preparations and there appears to be no necessity for any acid in this fluidextract.

In Fluidextract of Squill, we have one of the most important changes made in this class of preparations. Squill presents a troublesome problem. Its large content of mucilage and sugar makes it difficult to percolate with the ordinary solvents. The U. S. P. VIII directed that Fluidextract of Squill should be made by percolating 1000 Gm. of the drug with a menstruum of acetic acid and water until 1000 Cc. of percolate was obtained. No attempt whatever was made to exhaust the drug or to obtain a fluidextract of full strength, even if it were possible to carry out the instructions and percolate the drug with this dilute acetic acid menstruum.

The process now directed was proposed by Dr. J. M. Francis. The squill is first exhausted with a menstruum of two volumes of alcohol and one volume of water, and with a hydro-alcoholic menstruum of this strength squill can be percolated. The percolate is then concentrated and alcohol is added to precipitate out the mucilage and sugars. The alcoholic liquid decanted from the syrupy residue is again concentrated and made up to the requisite volume by the addition of diluted alcohol. This is necessarily a tedious and an expensive process, but yields a fluidextract of squill which appears to be permanent and fully represents the activity of the drug.

In Fluidextract of Senega, a change in manipulation is to be noted. The alcoholic strength of the menstruum remains the same as in the previous edition, but no alkali is added to the menstruum. Solution of potassium hydroxide is eliminated from the formula and in place thereof ammonia water is added to the finished product until a faint alkaline reaction is produced. The reason for this change in manipulation is that precipitation and gelatinization in fluidextract of senega is prevented by maintaining an alkaline liquid. The alkali that gives the best results is ammonia water, and in order to insure alkalinity being maintained, this is added in slight excess to the finished product.

The Eighth Revision directed that Fluidextract of Senna should be made with a menstruum of diluted alcohol and that the drug should be previously percolated with alcohol to remove the griping principle. This preliminary treatment with alcohol and drying of the drug is very expensive. The U. S. P. IX endeavors to obtain the same results by preparing the fluidextract by using a weaker alcoholic menstruum composed of one volume of alcohol and two volumes of water and omitting the preliminary extraction of the drug with alcohol.

In the Tinctures, several changes are of special interest. In Tincture of Arnica, in order to insure the exhaustion of the drug, *interrupted percolation* is directed.

In Tincture of Cantharides, a process of maceration with warm alcohol is directed. The cantharides directed (10 percent) can never be fully extracted by the alcohol and all we can succeed in doing is to make a saturated alcoholic solution of the active constituent, and this is attained by macerating at a temperature of 50° to 55° C.

In Compound Tincture of Gentian, the addition of glycerin and the reduction of the alcoholic strength to that of diluted alcohol is to be noted.

In Tincture of Iodine, in order to insure the solution of the iodine, 50 mils of water per liter is added.

Tincture of Kino of the U. S. P. VIII was not a satisfactory preparation. The addition of glycerin and the attempt at filtration meant a long exposure with associated contamination which engendered enzymic action and the early gelatinization of the product. The U. S. P. IX directs the extraction of the kino in a flask with boiling water, the alcohol being added to the cooled decoction and the tincture decanted and strained. By this simplified process, exposure of the kino is avoided and a more permanent preparation is secured.

Tincture of Nux Vomica is now directed to be made directly from the powdered drug by percolation with the menstruum and then assayed, the standard being fixed at total alkaloids .25 Gm. in 100 mils instead of strychnine 0.1 Gm.

In Tincture of Sanguinaria, hydrochloric acid is directed in place of acetic acid, with the alcoholic strength of the menstruum remaining the same as in the previous revision. One has but to try the use of hydrochloric acid in the extraction of sanguinaria to note its value for this purpose.

In the Tincture of Strophanthus, we note a decided improvement over the formula of the U. S. P. VIII. Strophanthus is a drug that is very difficult to extract and its large percentage of disagreeable fat is another troublesome factor. The U. S. P. VIII directed that the tincture be made with a menstruum consisting of 65 volumes of alcohol and 35 volumes of water without previously defatting the drug. The resulting tincture was cloudy from separated oil and was exceedingly nauseating because of the presence of the fat.

The medical use of strophanthus is such that this nauseating tendency of the preparation should be eliminated. The formula of the U. S. P. IX is a decided improvement over that of the previous edition in that the drug is first defatted by preliminary treatment with purified petroleum benzin. The use of alcohol 95 percent as the menstruum is likewise to be commended as more nearly extracting the drug and yielding a more definite preparation.

UNUSUAL METHODS OF SMUGGLING NARCOTICS.

Authorities of the Chicago house of correction have discovered that quantities of narcotic drugs are smuggled constantly to prisoner-patients in the "dope" cure hospital and that morphine, heroin and cocaine are introduced by mysterious underground channels. It was only after long vigils that kisses were discovered to be one agency which enabled patients to get such drugs, the morphine being in capsules transferred from mouth to mouth.

For a long time the smuggling of contraband drugs into the Bridewell has threatened to render ineffective the famous Sceleth drug cure in use there. The authorities have been powerless to stop the contraband traffic. Crude methods have been detected and suppressed.

Oranges arrived in such notable quantities as to arouse suspicion and an analysis revealed that most of the oranges sent to the prisoners contained from fifty to sixty grains of morphine. The fruit had been impregnated by means of a hypodermic needle stuck through the skin.

HELP WANTED.

Don't get scared out of your boots. The evils that threaten pharmacy are not big enough to overthrow it; not by a long shot. But if the practitioners of pharmacy are going to limit their defense of the calling to the resoluting, orating, vociferous condemning, and the like, with which they have so long "fought" their battles, it will not take more than a fortieth-rate evil to give pharmacy the deathblow. Get this in your head: It isn't the strength of pharmacy's enemies—they are pitifully weak—that bodes ill for pharmacy; it is the weakness, the lethargy, the internal bickering and suspicion of pharmacists. (From *N. A. R. D. Journal.*)

TEAM-WORK.

The good will of members is a valuable and essential asset of an association. Ill-wishes constitute an hostile invading force—active microbes that infect the confidence of those who might otherwise be induced to affiliate with an association.

Judgment on the results of a baseball game is largely based on the man in the box, but victory is usually dependent on team-work. The success of an association is dependent on coöperation; we all have an important part to act.

PHARMACEUTICAL FORMULAS

PROPOSED FOR A. PH. A. RECIPE BOOK

Thus far a collection of 114 Pharmaceutical Formulas has been compiled and published in THE JOURNAL, Vol. I, pp. 169, 366, 505, 637, 760 and 1307 (Feb. to Nov. 1912). Beginning with the March 1916 number these Formulas will be continued in monthly instalments by the Committee, and *all* members of the American Pharmaceutical Association are earnestly requested to render assistance by sending suitable formulas and criticisms to the Chairman,

OTTO RAUBENHEIMER, Brooklyn, N. Y.

No. 357.

GELATINUM OLEI RICINI.

Castor Oil Jelly.

Castor Oil	90.0 mils
Stearic Acid	2.5 Gm.
Sodium Hydroxide (U. S. P.)	0.6 Gm.
Saccharin	0.1 Gm.
Oil of Peppermint	0.2 mil
Alcohol	5.0 mils

Dissolve the sodium hydroxide in the alcohol, add the castor oil and stearic acid, heat until combined and add the other ingredients, then allow to cool.

No. 358.

PULVIS OLEI RICINI.

Castor Oil Powder.

Castor Oil	50 mils
Magnesia	50 mils

Mix.

No. 359.

BRASS POLISH.

Japan Wax	2 ounces
Oleic Acid	1 pound
Infusorial Earth	1 pound
Tripoli	1 pound
Benzin	1 gal.

Dissolve the wax in the oleic acid, by aid of heat, cool and add the other ingredients.

No. 360.

BRASS POLISH.

Petrolatum	4 ounces
Oleic Acid	4 ounces
Powd. Silica (very fine)	2 pounds
Benzin	1 gal.

Mix.

No. 361.

SILVER POLISH.

White Infusorial Earth	16 ounces
Potassium Hydroxide	1 ounce
Soft Soap	3 ounces
Hot Water	2 pints

Dissolve the soap in the hot water, add the earth, then the potassium hydroxide dissolved in an ounce of hot water. Mix well.

No. 362.

HAND PASTE.

Ivory Soap	2½ pounds
Powdered Pumice	1 pound
Hot Water, a sufficient quantity,	
To make	8 pounds

Mix.

No. 363.

HEKTOGRAPH MASS.

Gelatin	9 ounces
Glycerin	30 av. ounces
Water	19 ounces

Soak the gelatin in the water for an hour, heat until dissolved, add the glycerin, strain, pour into pans, skim and let cool.

Contributed by the Chairman.

No. 364.

HEADACHE COLOGNE.

Menthol	5 Gm.
Perfumed Spirit N. F. IV (Cologne Water)	100 mils

As good as any,
Better than most!

No. 365.

ELIXIR CARII.

Elixir of Caraway.

Kuemmel.

Oil of Caraway	1 mil
Alcohol	50 mils
Elixir of Anise, N. F. IV	200 mils

No. 366.

TINCTURA EPISCOPALIS. ESSENTIA EPISCOPALIS.

Bischof-Essenz.

Tincture of Cinnamon	50 mils
Tincture of Bitter Orange Peel	200 mils
Oil of Clove	2 drops
Oil of Lemon	5 drops
Oil of Orange	20 drops

Mix and filter.

Use one teaspoonful and about 75 Gm. of sugar to flavor and sweeten one bottle of red wine, or for use in a punch.

No. 367.

PEROXIDE HAND CLEANSER.

Sodium Perborate	175 Gm.
Pumice, powdered	75 Gm.
Soap Powder	750 Gm.
Kaolin	1000 Gm.

(*Seifens. Ztg.*, 1915, 909.)

No. 368.

ELIXIR E SUCCO LIQUIRITIÆ. ELIXIR PECTORALIS. ELIXIR PECTORALE. ELIXIR REGIS DANIÆ. ELIXIR RINGELMANNI. BREAST ELIXIR. BRUSTELIXIR.

I.

D. A–B. V.

Pure Extract Glycyrrhiza	30 Gm.
Fennel Water	90 Gm.
Ammonia Water	5 Gm.
Oil of Anise	1 Gm.
Alcohol, 90 percent	24 Gm.
To make	150 Gm.

Dissolve the extract in the fennel water, add this solution to the ammonia water and set aside for 36 hours. Then add the solution of oil in alcohol, shake well and leave stand for 8 days. Decant the clear portion and filter the balance in a well-covered funnel, so as to avoid loss of ammonia.

Breast elixir is brown and free from precipitate.

II.

The older German Pharmacopœias and other standards use this alternate formula:

Pure Extract Glycyrrhiza	30 Gm.
Fennel Water	90 Gm.
Anisated Spirit Ammonia, N. F. IV	30 Gm.

Mix and set aside for some time at a temperature of about 20° C. and then filter.

No. 369.

PULVIS DENTIFRICIUS ALBUS.

I.

E. B.

Precipitated Calcium Carbonate	745 Gm.
Magnesium Carbonate	250 Gm.
Oil of Peppermint	5 Gm.

II.

Ph. Aust. VIII.

Precipitated Calcium Carbonate	79 Gm.
Magnesium Carbonate	10 Gm.
Powdered Orris	10 Gm.
Oil of Peppermint	1 Gm.

No. 370.

PULVIS DENTIFRICIUS NIGER.

Ph. Aust. VIII.

Charcoal,
Cinchona,
Sage, equal parts.

Make a fine powder.

No. 371.

CAMPHORA CUM CRETA.

Camphor with Chalk.

"Camphorated Chalk."

B. P. Cx.

Camphor, in fine powder	10 Gm.
Precipitated Chalk	90 Gm.

Triturate the camphor with a small quantity of alcohol, add the chalk, and pass through a fine sieve.

A refreshing, cleansing and entirely harmless dentifrice. It should be stored in a cool place to avoid loss of camphor by evaporation.

No. 372.

PULVIS DENTIFRICIUS CUM CAMPHORA.

Camphorated Tooth Powder.
E. B.

Camphor, finely powdered	60	Gm.
Orris, finely powdered............	30	Gm.
Precipitated Calcium Carbonate...	320	Gm.
Magnesium Carbonate	90	Gm.

No. 373.

PULVIS DENTIFRICIUS SAPONATUS LASSAR.

Lassar's Tooth Powder.
E. B.

Precipitated Calcium Carbonate..	100	Gm.
Pumice, fine powder	25	Gm.
Potassium Chlorate, powdered....	2.5	Gm.
Soap, in powder	25	Gm.
Oil of Peppermint	1	Gm.

No. 374.

PULVIS DENTIFRICIUS JENKINS.

Jenkins' Tooth Powder.
Dresd.

Precipitated Calcium Carbonate	30	Gm.
Orris, powdered	15	Gm.
Pumice, in fine powder,		
Soap, powdered, of each	7.5	Gm.
Oil of Wintergreen	8	drops

This is the formula of the celebrated American dentist, Dr. Jenkins, in Dresden, Germany.

No. 375.

PULVIS DENTIFRICIUS PUSINELLI.

Pusinelli's Tooth Powder.
Dresd.

Precipitated Calcium Carbonate	25	Gm.
Potassium Chlorate, powdered.	12.5	Gm.
Orris, powdered	5	Gm.
Cuttle Fish Bone, fine powder..	5	Gm.
Myrrh, fine powder............	2.5	Gm.
Oil of Peppermint	6	drops

No. 376.

PULVIS DENTIFRICIUS SPINNER.

Spinner's Tooth Powder.
Dresd.

Precipitated Calcium Carbonate..	60	Gm.
Magnesium Carbonate	4	Gm.
Orris, powdered	2	Gm.
Oil of Peppermint	6	drops

No. 377.

PULVIS DENTIFRICIUS CARBOLISATUS.

Carbolated Tooth Powder.
"Carbolic Tooth Powder."

Liquefied Phenol,		
Alcohol, of each	1	mil
Oil of Rose Geranium...........	0.5	mil
Carmine	0.5	Gm.
Precip. Calcium Carbonate.......	100	Gm.

(*Apoth. Ztg.*, 1915, p. 175.)

No. 378.

PASTA DENTIFRICIA CARBOLISATA.

Carbolated Tooth Paste.
"Carbolic Tooth Paste."

Carbolated Tooth Powder, No. 377	100	Gm.

Mucilage Tragacanth,
Glycerin, of each, a sufficient quantity,
To make a paste of proper consistence.

(*Apoth. Ztg.*, 1915, p. 175.)

No. 379.

PASTA DENTIFRICIA ANTISEPTICA.

Antiseptic Tooth Paste.
Hess.

Precip. Calcium Carbonate.......	140	Gm.
Potassium Chlorate, powdered ..	30	Gm.
Soap, powdered	10	Gm.
Tincture of Myrrh	10	Gm.
Aromatic Tincture	10	Gm.
Oil of Peppermint	10	drops
Carmine	1	Gm.
Potassium Carbonate	1	Gm.
Glycerin,		
Water, of each a sufficient quantity.		

Triturate the first 6 ingredients and make into a soft paste with a mixture of equal parts of glycerin and water. Dissolve potassium carbonate and carmine in 10 mils of water and mix this solution into the paste.

This formula is about the most sensible which has come to the notice of the Chairman, inasmuch as the quantity of glycerin is not specified. It can readily be seen that according to its density calcium carbonate will absorb different amounts of liquids.

No. 380.

SYRUPUS POTASSII GUAIACOLSULPHONATIS.

Sirupus Kalii Sulfoguajacolici.
Guakalin. Sirolin.
E. B.

Potassium Guaiacolsulphonate	7	Gm.
Distilled Water	23	mils
Syrup of Orange	70	Gm.

Dissolve without application of heat. Guaiacolsulphonate is "Thiocol." Particulars about this chemical can be found in *N. N. R.*, 1913, p. 124.

No. 381.

SYRUPUS GUAIACOLI COMPOSITUS.

Ph. Aust. VIII.

Potassium Sulfoguaiacolate	10 Gm.
Distilled Water	40 Gm.
Syrup of Orange	100 Gm.

Dissolve the salt in water and add the syrup.

No. 382.

SOLUTIO CALCII CHLORHYDROPHOSPHATIS.

Solution de chlorhydrophosphate calcique, Pautauberge.

Lux.

Calcium Phosphate	20 Gm.
Hydrochloric Acid	17.15 Gm.
Distilled Water, a sufficient quantity,	
To make	1000 Gm.

Dissolve cold.

No. 383.

SOLUTION PAUTAUBERGE CREOSOTÉE.

Calcium Chlorhydrophosphate	150 Gm.
Hydrochloric Acid	30 Gm.
Creosote	37.5 Gm.
Glycerin	500 Gm.
Alcohol	500 Gm.
Crocated Tinct. Opium N. F. IV.	25 Gm.
Water, a sufficient quantity,	
To make	5000 Gm.

(*Ph. Ztg.*, 1913, No. 92.)

No. 384.

CAPSULÆ CREOSOTI CUM IODOFORMIO.

Capsules Pautauberge.

Iodoform	2 Gm.
Creosote	5 Gm.
Calcium Phosphate	15 Gm.

Divide into 50 capsules.

(*Apoth. Ztg.*, 1915, p. 183.)

No. 385.

PULVIS STERNUTATORIUS ALBUS.

Schneeberger Snuff.

D. M.

Orris, powdered	20 Gm.
Soap, powdered	5 Gm.
Bean meal	75 Gm.
Perfume Oil, No. 386	1 Gm.

In this improved formula the powdered soap replaces the white hellebore, which was used in the orginal recipe.

No. 386.

MISTURA ODORIFERA. OLEUM MILLEFLORUM.

Perfume Oil.

D. M.

Oil of Bergamot	45 mils
Oil of Lemon	30 mils
Oil of Lavender	20 mils
Oil of Cassia	2 mils
Oil of Clove	2 mils
Oil of Wintergreen	1 mil
Coumarin	0.5 Gm.

No. 387.

PULVIS STERNUTATORIUS MENTHOLI.

Menthol Snuff.

Muench.

Menthol	3 Gm.
Sugar of Milk	22 Gm.
Boric Acid	75 Gm.

No. 388.

PULVIS MENTHOLI COMPOSITUS.

Compound Menthol Snuff.

"Mentholin."

E. B.

Menthol	2 Gm.
Sozojodol-Sodium	2 Gm.
Sugar of Milk	48 Gm.
Boric Acid	48 Gm.

No. 389.

PULVIS STERNUTATORIUS CUM MENTHOLO.

Menthol Snuff.

F. M. G.

Menthol	5 Gm.
Powdered Roasted Coffee	5 Gm.
Boric Acid	30 Gm.
Rice Starch	60 Gm.

No. 390.

PULVIS STERNUTATORIUS VIRIDIS.

Green Snuff.

Ph. Aust. VIII.

Soap,	
Orris, of each	10 Gm.
Lavender Flowers,	
Sage,	
Majoram,	
Melilot, of each	20 Gm.

Make into a fine powder.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the Editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

CHICAGO.

The Chicago Branch of the American Pharmaceutical Association held its regular monthly meeting, Tuesday, November 21, at the new quarters of the University of Illinois School of Pharmacy, 701 South Wood Street.

This was the date of the formal opening of the School and the druggists of the state were invited by the President of the University to visit and inspect the new buildings and equipment. A meeting of the Executive Committee of the Illinois Pharmaceutical Association was held during the day and again with the Branch in the evening. A reception was given the State Board of Pharmacy and the officers of other pharmaceutical organizations.

As President Craig was in New York, Ex-President James H. Wells presided. The meeting was in the nature of a general conference on coming state legislative matters relating to pharmacy.

Dean W. B. Day extended a welcome to the visitors. He spoke of the early struggles of the College and the many years' effort on the part of the Alumni and Faculty which now had borne fruit in the buildings and equipment which those present had the pleasure of inspecting. He referred to his twenty-four years of service with the school and expressed his joy in the realization of the hopes and efforts of so many years. The fact was pointed out that the school belongs to the pharmacists of Illinois and it rests with the pharmacists of the state to determine how successful and how serviceable to pharmacy the institution shall be made. He indicated some of the ways in which the school can be of real service to pharmacists and dwelt upon the outlook under the higher entrance requirements which had been regarded by some as likely to decrease the attendance—a prediction which fortunately has not been realized. The present classes, numbering 160 students, while somewhat smaller than last year, are fully up to the expectations and the prospects are that the attendance will continue to grow steadily from year to year. He referred especially to the large number of women students—thirteen in all—and the excellent showing that they are making in their studies.

President Denton, of the I.Ph.A., presented the proposed legislative bills that had been discussed in the Executive Committee meeting and summarized them as follows: (1) An amendment to the pharmacy law requiring graduation from a reputable college or school of pharmacy before candidate could be admitted to the examination for registered pharmacist by the State Board of Pharmacy. (2) A bill restricting the sale of pharmaceutical preparations, containing more than 2 percent of alcohol, to registered pharmacists. (3) A bill prohibiting the use of trade coupons or restricting their use by high license.

President John J. Chwatal, of the Chicago Retail Druggists' Association, heartily endorsed these proposed legislative measures, held that they would very materially benefit pharmacy in the state and additionally safeguard the public and pledged the support of the C. R. D. A.

Secretary H. C. Christensen, of the National Association of Boards of Pharmacy, spoke especially on the prerequisite requirement, heartily endorsed it and believed that the very strong pharmaceutical and public sentiment back of it would carry it to success before the legislature and the governor. He mentioned the fact that a similar bill was to be presented to eighteen state legislatures this winter.

Frank J. Butler, president of the State Board of Pharmacy, stated that the Board heartily endorsed the prerequisite proposition and would urge its passage into law.

Leo L. Mrazek, president of the Alumni Association of the University of Illinois School of Pharmacy, reviewed briefly the activities of the Association in legislative work. The Alumni of the school now number 1700, of which more than 1000 are in Illinois. Personal work with the state senators and representatives in favor of good legislation and in opposition to bad legislation will have a great influence. He especially endorsed the proposed bills and also the University appropriation bills.

Secretary F. C. Dodds of the State Board of Pharmacy, endorsed the proposed measures but strongly urged upon the Association the necessity of personal work with the legislature. He said that a capable man must be on the job to push such legislation as you want and have him backed up with delegations supporting the measures.

Secretary Thomas H. Potts, of the National Association of Retail Druggists, discussed some recent court decisions bearing on the Harrison Anti-Narcotic Law and showed how druggists must also watch national legislation to protect their interests.

Dr. Bernard Fantus, representing the Medical College of the University, discussed relations between physicians and pharmacists and expressed the belief that pharmacy in time will become the laboratory branch of medicine and that schools of pharmacy should train a class of young men and women fully qualified to perform all pharmaceutical, chemical, bacteriological and diagnostic assay work.

The meeting adjourned with an expression of thanks from Dean Day to the visitors for their interest and enthusiasm.

E. N. Gathercoal,
Secretary.

CINCINNATI.

The spirit of the true pharmacy is not dead. This was amply emphasized by the generous response to "An Open Call to All Pharmacists of Cincinnati and Vicinity to Learn the New Pharmacopœia," a call issued by the Cincinnati Branch of the American Pharmaceutical Association for the November meeting.

After the routine business of the Association was disposed of, Mr. Frank H. Freericks paid a high tribute to the worth and work of Dr. Julius Eichberg, who lately passed away, and who as a pharmacist, teacher and physician enjoyed the highest esteem of his co-workers and friends during the whole of his busy career.

Action was taken upon the demise of Dr. E. S. McKee, a member of this branch, who passed away in South America, while traveling to restore his shattered health. President Otis appointed Messrs. Freericks, Werner and Thiesing a committee to draft appropriate resolution of condolence.

A motion to have this branch endorse Proposition No. 2 to continue *Year Book* was lost, same being held to be rather a matter of individual expression.

President Otis then introduced the first speaker of the evening, Dr. Frank Cain, who spoke at length upon changes, additions and deletions in the new Pharmacopœia, laying particular stress upon Biological Products; naming agar-agar, a gum-like substance, typifying the lowest form of organism: Diastase, a mixture of amylolytic enzymes, obtained from germinating malt, these having the property of converting starch into dextrose and other sugars, which action, however, ceases in excess of 1 percent acid; Hypophysis Sicca, or Desiccated Pituitary Body, the posterior lobe obtained from the pituitary body of cattle, cleaned, dried and powdered, is assayed physiologically on animals and is used as a substitute for Ergot; Liquor Hypophysis is a slightly acidulated aqueous solution of the active, water-soluble principles of the above.

He gave attention to the serums: Antidiphtheric Serum, purified and dried, as well as the new addition, Antitetanic Serum; Suprarenalum Siccum, the suprarenal glands of animals, which are used for food by man, and exert astringent hæmostatic and local anæsthetic properties; it is the Adrenalin of the British Pharmacopœia. These products are also formed synthetically, such as Adrenin, which give rise of blood pressure and act as powerful hæmostatic.

Thyroidum Siccum, the dried thyroid glands of animals, which are used as food by man and containing not less than 0.1 nor more than 0.23 percent of iodine in thyroid combination.

The United States Pharmacopœia directs an assay; it may be given in doses of 0.1 Gm.; is recommended in goiter and obesity.

Virus Vaccinicum—Smallpox Vaccine, the pustules of vaccinia or cowpox from healthy vaccinated animals of the bovine species, prepared under aseptic conditions. All vaccines must be under Governmental protection, regarding mode of manufacture and dating.

Biological assays, applicable to drugs for which there has been no chemical method of a satisfactory nature so far developed. These assays direct the drug to be administered to animals and the effect noted. From the results obtained, the strength of the preparation is calculated and proper corrections are made, so that the preparation shall conform to the standard, which has been adopted. These methods of assay are applicable to the members of digitalis group, cannabis, aconite and the suprarenal gland. In the case of cannabis and its preparations the biological assay standards are compulsory.

The discussion following Dr. Cain's address was led by Prof. C. T. P. Fennel and participated in by a number of members.

Mr. Louis Werner, the next speaker, took up the Galenicals: He prefers to use phenol in the pure condition in making Unguentum Phenolis, instead of the 87 percent, this change making a more permanent ointment. In Unguentum Belladonna, the amount of woolfat may be increased; the addition of hydrochloric acid in Tincture of Sanguinaria is good. The changes in mode of preparation of tinctures of Kino, Nux Vomica and Iodine are commended. Liquor Magnesia Citratis has undergone an improvement, the sodium salt may be used for that of potassium. The change in Volatile Liniment is good, providing a good quality of sesame oil be used. The omission of alcohol in Infusion of Digitalis is considered excellent, as the new formula necessarily insures a freshly prepared infusion. Mr. Werner was warmly thanked for his excellent paper, and was then followed by Mr. H. W. Jones, of the Wm. S. Merrell Chemical Co.

In answer to a statement during previous discussion, that so many preparations in the United States Pharmacopœia, on account of the methods of preparation, testing, assaying and standardizing, were becoming almost impossible of manufacture by the pharmacist, and therefore perhaps played into the hands of the manufacturing pharmaceutical houses, Mr. Jones took occasion to point out the differences between the pharmacists of England and Germany and those of the United States; the former countries do not issue licenses unless the applicant is fully qualified to use their respective pharmacopœias, and that the United States pharmacist, by work and study would soon be able to intelligently meet all requirements of his pharmacopœia, pharmaceutically as well as legally. Mr. Jones then gave a historical review of the Pharmacopœia, as well as the objects of same; he noted the changes in expressing directions, that they are now in the imperative mode; the atomic weight changes, 0 as 16, changing the values of volumetric solutions: the introduction of the term "mils" instead of Cc. He considers the addition of synonyms as excellent, while the semi-official abbreviations are entirely superfluous, in some cases even dangerous, particularly if the legibility of the physician's writing be taken into account, as well as the multitude of the coined trade names now on the market.

Chas. A. Apmeyer, *Secretary.*

CITY OF WASHINGTON.

December 5, 1916.

The November meeting of the Branch was held at the National College of Pharmacy, December 4, the members of the Medical Society of the District of Columbia being invited as guests.

The subject for consideration was a symposium on the U. S. Pharmacopœia IX, and was presented on behalf of the physicians by Dr. W. M. Barton and Dr. Noble P. Barnes, and on behalf of the chemist and pharmacist, Dr. W. S. Hubbard and Mr. H. C. Fuller.

Dr. Barton delivered an interesting address discussing the history of the Pharmacopœia and calling attention that in 3 years more the 100th anniversary can be celebrated and showed that the first convention held, delegates from the Medical Society of the D. C. participated.

From the point of view of the physician the Pharmacopœia had but little of interest to the physician until the 8th revision, the 9th revision he commended highly and said while primarily for the use of chemists and pharmacists that it was more important than ever to the physician. In scope the physician has every reason to be pleased as many worthless remedies have been deleted, some however remain, and it is regrettable that Salvarsan and many other modern drugs have not been admitted. The fact that they are patented or protected should in his judgment not exclude them from admission. The deletion of many complex preparations is a decided advance and the physician who desires such compounds can and should consult the National Formulary. The average dose, inaugurated for the first time in the U. S. P. VIII, and again followed in the 9th revision, was and is the first great act on the part of the revisers to make the U. S. P. a physicians' book and he predicted that ere long all medical works in giving doses will follow this plan. The assays especially biological assays are vastly important and interesting to the physician. Serums and biological products as well as diagnostic tests all go to make the book more important to the physician than any previous issue. The chapter on sterilization was commended and should prove useful, the omission of structural formulas he regrets as they were valuable to the physician as well as the chemist. In all, he had no hesitancy in saying that he considered the U. S. P. IX shows distinct advancement and is by far the best that has been published.

Dr. Barnes in his remarks stated that the U. S. P. IX showed distinct advancement and should be on every physician's desk and not in his library. No book is above criticism, he felt, however, that it reflected credit on both physician and pharmacist for the advancement distinctly shown. The U. S. P. is simplicity and that is what is desired, the more known about disease the less remedies required, the simple prescription gives results not to be obtained by complex mixtures or compounds. He spoke of some of the shortcomings and spoke especially of Compound Syrup of Hypophosphites as having been shown to be useless. He was glad to see that the International Protocol had been closely followed, some agreement to bring about international nomenclature would be most desirable as thereby physicians would learn to write prescriptions instead of using a language of their own. He agreed fully with Dr. Barton in his favorable comments of the U. S. P. and said that it was so far in advance of recent published dictionaries that he could not see how the physician could get along without the Pharmacopœia.

Dr. Hubbard discussed the Pharmacopœia as a practical chemist, and called attention that many articles now on the open market exceeded its requirements, notably Ether, the aliquot part method of assay was severely criticized and he predicted that it would prove not as accurate as other methods. Many of the tests of the U. S. P. are rather lax as pointed out by one manufacturer and published in the JOURNAL and from his experience he felt that he must concur in this conclusion. The book was an exceedingly valuable one for the pharmacist as well as the chemist but was little appreciated by the latter. He was most favorably impressed with the new edition and especially the index which he considers exceptionally fine. The omission of the alcohol table at other temperatures than 15.56° he considers a mistake as they saved much time and calculations. The alcoholic content as given, while to a certain extent is useful, he considers liable to cause trouble if adhered to closely. Taking it all together he considers the 9th edition a decided advance.

Mr. Fuller discussed many points and commended the book as a whole, he felt, however, that it should contain standards for more drugs, so as to be more useful for the chemist and pharmacist. The general process for proximate assays and the various processes under the respective drugs or preparations he considered less explicit than those of the previous edition, so that the book is not as well adapted to the use of the student or those slightly familiar with such work, for the trained chemist it made little difference, but the Pharmacopœia to be more generally used, and there is no reason why it should not be, especially by students, should give more details especially as to tests and assays. His paper in full will be offered for publication in the JOURNAL later.

After discussing the subject fully in which all joined in praise for the U. S. P. IX, especially Doctors Barton and Barnes, in closing the discussion, the meeting adjourned after tendering a vote of thanks to the speakers.

S. L. HILTON, *Secretary.*

DETROIT.

A meeting of the Detroit Branch of the American Pharmaceutical Association was held November 17, at the Wayne County Medical Society Building, Chairman F. F. Ingram presiding.

The minutes of the previous meeting were read and approved.

In his opening remarks the chairman called attention to the importance of the work done by the A. Ph. A., comparing it to the work done by the American Medical Association for the doctors. A wrong impression prevails among a good number of druggists regarding the purpose of the A. Ph. A. It is not a purely scientific organization but it is intended to take up any subject that will benefit pharmacy and with that end in view had arranged his programs for the year on that basis. He then introduced the first speaker of the evening, Mr. J. W. T. Knox, advertising manager for Nelson Baker & Co., whose subject was "What Makes the Sales."

Mr. Knox facetiously remarked in the course of his address that salesmanship is not the gift of gab and it is not genius but it is largely to know your goods and present them fairly.

Mr. J. R. Worden, advertising and sales manager of Frederick Stearns & Co., followed Mr. Knox, taking as his subject, "Cost Accounting." Following the addresses the chairman requested any one who cared to, to comment or ask questions and several responded: Harry B. Stevens, D. Edmund Perrin, C. A. Weaver and others.

We regret that space does not permit us at this time to give the addresses of these gentlemen. One thing we can say and that is—that we were sorry not to have had every druggist of the city present to hear them. Men holding positions such as they do could not help but give ideas that would benefit any merchant.

We were pleased to see such a good attendance and our only regret is that not more druggists were present. The next meeting will be Friday, December 15, at the Wayne County Medical Society Building.

F. F. Ingram, Jr., *President.*

NASHVILLE.

The regular monthly meeting of the Nashville Branch of the American Pharmaceutical Association was held in joint session with the Nashville Drug Club in the Life and Casualty Building Thursday afternoon, November 16, when Mr. D. J. Kuhn presided.

After the minutes of the previous meeting were read and approved, the report of the committee appointed to investigate the opening of several new stores in Nashville by ex-saloon keepers was called for. The committee reported that they had not finished with the investigation and, therefore, asked for further time, which was granted. The remaining part of the afternoon was devoted to a general and informal discussion of various matters, especially in relation to the recent election in which Ira B. Clark was a candidate for the State Legislature. While Mr. Clark was not elected he ran short only a few votes and led on the independent ticket. Mr. Clark had only entered the race a few weeks before the election and, therefore, druggists were highly pleased with his success which has encouraged them to take a deeper interest in local and state political affairs. The consensus of opinion was that if the druggists would coöperate and earnestly advocate measures they were interested in that they would meet with success. It was also expected that druggists should be represented in the legislative bodies of the State.

So that the holidays may not interfere with the attendance at the next meeting, this will be held a week earlier, namely, December 7. At this time the proposed new State Pharmacy Law will be considered and also an amendment to the present Prohibition Law, in order to do away with the possibility of making bar-rooms out of drug stores.

William R. White, *Secretary.*

NEW YORK.

The October, 1916, meeting of the New York Branch of the American Pharmaceutical Association was held in the library of the York College of Pharmacy, on Monday evening, October 9.

Thirty-eight members were present. President Lascoff presided. The Secretary read the minutes of the previous meeting which were approved. The Treasurer submitted his report, which was received with thanks.

Membership Committee: A report from this Committee was read which showed that since the May meeting, the following applications for membership had been forwarded to General Secretary Day:

Harry J. Novack, M.D., 595 Willoughby Avenue, Brooklyn; Joseph F. Paulonis, 454 Grand Street, Brooklyn; Clarence C. Sneider, 243 South 9th Avenue, Mt. Vernon; Joseph C. Prote, Jr., 195 Main Street, Astoria, N. Y.; Isidore J. Blumenkranz, 234 Rivington Street, New York; Leon S. Lord, 267 Jewett Avenue, West New Brighton, S. I.; Max Hansburg, 489 Third Avenue, New York; Richard A. Austin, Cairo, N. Y.; Elmer E. Chilson, 326 Monroe Avenue, Rochester, N. Y.; Robert F. McDonald, M.D., 391 West End Avenue, New York; Louis Spencer Levy, 80 Maiden Lane, New York; Emil Roller, 574 Amsterdam Avenue, New York.

Mr. Thomas J. France, 42 Hart Street, Brooklyn, N. Y., and Miss Bertha Urdong, 52 St. Nicholas Avenue, New York, were elected to membership at the Atlantic City meeting.

The names of Brooke J. Davis for membership in the parent association, and A. F. Marquier, for membership in the Branch Association, were proposed at this meeting.

Committee on Legislation and Education: Dr. Anderson, Chairman, reported on the activity of the Commissioner of Weights and Measures concerning the stamping of weights on counter sale packages.

Committee on Fraternal Relations: Dr. Diner, Chairman, reported that a meeting with the Committee from the County Medical Society would soon be held.

Progress of Pharmacy: Dr. Diekman submitted reports on the following subjects: Pink Color in Fats and Butter; Calcium Acetylsalicylate; Volatile Oil of Euthamia Caroliniana; A Disinfection Process; Detection of Benzoic Acid in Foods; Presence of Copper in Formaldehyde; Determination of Rosin in Gum Resins; Fermentation of Lemonade; Estimation of Fatty Matter in Cacao and Products.

The special committee appointed to raise funds for entertainment in connection with the Atlantic City Convention of the Association reported through its Chairman, Dr. Lovis, that a total of $1109 had been contributed and that a surplus of $749.70 had been rebated in proper proportion to the respective contributors. This report was received and ordered placed on file. The Committee was discharged with the thanks of the members.

The Committee on Roemer Resolutions reported the memorial book to be finished. This book was exhibited to the members present and ordered sent to Mrs. Roemer after the necessary signatures had been affixed.

The Secretary read letters of resignation from Messrs. H. J. Schnell and B. F. Hays. Upon motion, these resignations were accepted.

Election of Members: Prof. A. F. Marquier was elected to membership in the New York Branch.

Very interesting reports were submitted by the delegates to the various annual meetings. Prof. C. P. Wimmer reported for the Connecticut meeting; Prof. George C. Diekman for the New York; Prof. Jeannot Hostmann for the New Jersey; Prof. H. V. Arny for the A.Ph.A., and Dr. Anderson for the N.A.R.D. meeting.

Upon motion duly seconded and carried, the Secretary and the Treasurer were appointed a committee to draft a set of By-laws.

JEANNOT HOSTMANN, *Secretary.*

At the regular meeting of the New York Branch of the A.Ph.A., held at the New York College of Pharmacy Building Monday evening, November 13th, the proposed metric conference was the principal matter under discussion, and a committee of five was appointed to represent the Branch at the discussion of the Metric System of Weights and Measures at the annual meeting of the Association for the advancement of Science the last week in December. The subject was introduced by Caswell A. Mayo, with a brief historical sketch of the movement and a report on the conference between sub-committees of various organizations including the American Chemical Society, American Pharmaceutical Association, National Wholesale Grocers' Association, National Canners' Association, and others. Prof. H. V. Arny closed the discussion.

Dr. William C. Anderson, chairman of the Committee on Legislation and Education, reported on the test case (Ashley) of the Harrison law, on prospective anti-narcotic legislation on the activities of the Anti-Narcotic League. The report precipitated a lively discussion participated in by Messrs. Diekman, Lascoff, Latham, Arny, Hostmann, Rehfuss, and Diner. The committee on fraternal relations met in joint session with a like committee from the County Medical Society, and Dr. Joseph Diner, as chairman of the former committee, reported that the physicians hailed the suggestion of a joint meeting of the two bodies with enthusiasm. No definite date has been fixed but it is expected to be held some time in January or February of next year. Dr. George C. Diekman as reporter on the progress of pharmacy presented some interesting reports on the assay of hyoscyamus, enzymes and brewers' yeast, mercury hydrozones, identification of croton oil and iodine starch reactions. The names of four new applicants for membership were presented.—*Pharmaceutical Era.*

EDITORIAL NOTES

Editor: E. G. EBERLE, Bourse Building, Philadelphia, Pa.

Committee on Publication: J. W. ENGLAND, *Chairman;* G. M. BERINGER, CASWELL A. MAYO, H. B. MASON, J. H. BEAL, and the Editor-in-Chief of the Journal, General Secretary, Treasurer and Reporter on the Progress of Pharmacy, *ex-officio.*

Office of Publication, 253 Bourse Building, Philadelphia, Pa.

CORRECTIONS FOR 1914 YEAR-BOOK.

On page 118, subject, Creolin, this should be Cerolin, and the description is for the latter substance. The transposition occurs about the middle of the abstract also.

On page 127, under Iodeol; the manufacturer advises that the first two sentences should be stated as follows: "Iodeol is an oily suspension of colloidal iodine, but it is not dissoluted in alcohol. Colloidal iodine is maintained in oil by an hydrocarbon of the camphenic series to prevent oil and iodine to combine."

CARREL'S SOLUTION.

Referring to the formula of Carrel's Solution, on page 1195 of the November number of the JOURNAL, the extension in parenthesis should be " (practically 200 mils)." The specific gravity of solution of chlorinated soda is probably not over 1.1, so there would be a very slight variance only, in the relative volume.

Dr. A. B. Lyons points out that it should be unnecessary to explain the term "mil" as a "Cc.," for the former term has been adopted in the Pharmacopœia, and also states that sterilized water is unnecessary in this formula as the chlorinated soda would make short work of any germs that might be present.

STATE BENEFIT INSURANCE FOR THE SICK.

A model health insurance bill for wage earners will be introduced this winter in the legislatures of 20 different states. The bill has been drafted by a committee of the American Association for Labor Legislation, which was appointed four years ago. That committee has investigated systems of health insurance in operation in European countries and has taken the best features of them and incorporated them in the new bill.

It will provide for the insurance against sickness of all workers earning less than $100 a month. The insurance fund will be made up of joint contributions from the workmen, their employers and the state. The bill will provide for the formation of a mutual association in each state, which will control the fund. The workman insured will receive free medical care and treatment and a cash benefit of two-thirds of his wages while he is sick, payable for a maximum of 26 weeks in a year. The insurance will also provide for funeral expenses in case of death, and for a maternity fund if a child is born into the family of the insured, and medical care for the family.

The committee which drew up the model sickness insurance bill to be introduced in 20 state legislatures this winter is composed of Miles M. Dawson, actuary and lawyer; Prof. Henry R. Seager, of Columbia University; Dr. Alexander Lambert, chairman of the Judicial Council of the American Medical Association; Miss Lillian D. Wald, president of the National Organization for Public Health Nursing, and Dr. Henry J. Harris, of the Library of Congress.

Last month we commented editorially on this kind of insurance, and the fact that such legislation is contemplated in many states makes it a subject for serious consideration. The druggists are concerned from several standpoints; they will be subject to the tax which creates the fund to pay the insurance; they themselves will be called upon to pay their portion in the event of the sickness of their employees, and they will undoubtedly lose business, for it is hardly likely that wholesale contracts will be made with them.

From certain viewpoints the proposition is attractive and therefore should be studied carefully. It is a question whether, under the conditions provided, the insured will receive the proper kind of medical attention; there is the opportunity for neglect, for schemers would very soon get busy on ways and means to make the most money out of the least service. The tendency of much legislation is toward paternalism, following the lines of European countries where conditions are very different. The attempt to pass the model health insurance bill will be made, and druggists should give the subject serious thought.

THE IMPROVED STATUS OF PHARMACISTS IN THE UNITED STATES NAVY.

Dr. George F. Payne, of Atlanta, Ga., has communicated to us a detailed statement of the recent benefits received by pharmacists in the navy on account of the Navy Appropriation Act, passed at the last session of Congress.

The chief pharmacists on the active list with creditable records will,. after six years from date of commission, receive the pay and allowances that are now or may hereafter be allowed a lieutenant of the junior grade. After 12 years from the date of commission, chief pharmacists on the active list with creditable records will receive the pay and allowances that are now or may hereafter be allowed a lieutenant in the United States Navy.

Warrant officers will receive the same allowances of heat and light as are now or may hereafter be allowed an ensign of the United States Navy. Warrant officers will also be allowed such leave of absence with full pay as is now or may hereafter be allowed other officers of the United States Navy.

The yearly naval pay of lieutenants per annum is $2400 when on shore and $2640 while at sea. There is an increase of 10 percent for each five years, until after 20 years of service the pay while on shore is $3360 and at sea $3696. The pay for lieutenants, junior grade, is $2000 when on shore and $2200 while at sea. The increase is on the same basis as for lieutenants, so that after 20 years of service the pay is $2800 when on shore and $3080 while at sea. The lieutenants have a further allowance, when quarters are not provided, of $789.92 per annum, while the junior grade, under the same conditions, are allowed $605.44.

Dr. Payne in commenting thereon gives credit to the American Pharmaceutical Association and the hearty co-operation of other associations and says further that this is certainly a great advance from the unfortunate conditons that obtained in 1894 when this work was started. A naval pharmacist was then not always an American citizen and occasionally had not even been in the United States. The medical officers have learned to appreciate the value of the pharmacists' work and especially now when the better pay attracts good men. Due credit is given to the pharmaceutical press for its most generous assistance in educational work that prepared Congress for giving better recognition to pharmacists in the Government service.

PRESENTATION TO EDITOR J. P. GILMOUR.

Honoring Mr. J. P. Gilmour, who was elected editor of the Pharmaceutical Journal (Great Britain) some months ago, the Scottish pharmacists presented him with a testimonial, October 24. The movement was a national one, and many representative Scottish pharmacists and members of their families assembled on the day mentioned in Cranton's Royal Exchange Restaurant, Glasgow, to honor their friend and colleague. Quite an elaborate program was prepared for the happy and interesting event.

J. P. GILMOUR

Mr. W. L. Currie, the senior Scottish representative on the Pharmaceutical Council, made the presentation, prefacing the remarks in that connection with a sketch of Mr. Gilmour's career in pharmacy, from his apprenticeship days onwards, and described the active part he had always taken in the organized life of the craft. Mr. Gilmour's activities began in the Glasgow Chemists's Literary Society, and he had progressed through all grades of service in Local Association, Pharmaceutical Society, and N. H. I. work to the honorable position he now held. On behalf of the subscribers, he then presented Mr. Gilmour with a handsome silver tea and coffee service and tray suitably inscribed, a gold necklet and bracelet for Mrs. Gilmour, a brooch and ring for Miss Gilmour, and a bank draft. Mr. Gilmour responded feelingly in accepting the gifts on behalf of his wife and daughter. A number of other brief addresses were made, and a musical program followed.

TESTIMONIAL DINNER TO DR. WILLIAM C. ANDERSON.

Commemorating the twenty-fifth anniversary of Dr. Wiliam C. Anderson, as teacher of pharmacy, the faculty and members of Brooklyn College of Pharmacy, and many leading pharmacists of New York and nearby states, assembled at a banquet in Elks' Club, Brooklyn, 'November 21, to celebrate the occasion.

The honored guests of the evening were Hon. Luke D. Stapleton of New York Supreme Court; Professor Joseph P. Remington, Dr. H. H. Rusby, Rev. John Williams, Dr. Willis G. Gregory, Dr. Jacob Diner, Hon. Melville J. France, Arthur S. Wardle, Thomas J. Keenan, and Dr. Stewart A. Walsh. Prof. Henry W. Schimpf presided as toastmaster.

A number of addresses were made and all of the speakers referred to the predominant qualities that contributed to Professor Anderson's success. Prof. D. C. Mangan, on behalf of the faculty of the Brooklyn college, presented Dr. Anderson with a gold watch, and the doctor, in expressing his appreciation of this gift, gave perhaps the secret of his success, a formula given him by one of the old-time professors of the Brooklyn College.

"The formula of success was given as a regular part of the chemistry course when Dr. Perkins was a member of the faculty," said Dr. Anderson. "This formula, which I have never forgotten, is as follows: HW + HW + HW = Success — Hard Work + Head Work + Heart Work = Success. No success is possible except the heart be in it, and my work in pharmacy has been a work of love, I have always placed pharmacy beside my country and my home."

DR. JOKICHI TAKAMINE BANQUETED BEFORE LEAVING FOR JAPAN.

Dr. Jokichi Takamine, member of the American Pharmaceutical Association, was banqueted at the Waldorf-Astoria, November '18, as guest of Joseph P. Divine, of Buffalo. Many prominent chemists attended.

The Japanese Government, in order to assure the successful manufacture of dyes in Japan, has guaranteed the interest on a large sum of money, provided by the investing public in Japan.

The Japanese Dye Company (government subsidized) in starting this industry made a careful research of the available sources both for talent and the mechanical appliances to accomplish its object. As one of the results, Dr. Takamine is one of those selected to collaborate with them in the starting and developing the dye industry.

IN MEMORY OF MARTIN I. WILBERT.

FREDERICK J. WULLING.

In the passing on of Martin I. Wilbert, the pharmaceutical world has lost another ethical pharmacist, one who has never been sympathetic with the encroachment of commercial upon pure pharmacy but who ever represented and advocated a purely professional pharmaceutical service. His broad pharmaceutical training, knowledge and experience and his unremitting labors in behalf of everything relating to better practice made him an invaluable member of the calling and one whose loss will be felt more keenly as the years go by. His intolerance with everything not strictly ethical and professional is well known to his many friends and accounts for the enemies he made, but who, nevertheless, respected his convictions and sincerity.

His voluminous contributions to pharmaceutical literature are a worthy index to his professional convictions and have, together with his many other pharmaceutical activities, established him firmly in the higher American pharmacy of the past several decades and his influence for all that looks to better and higher things for pharmacy is permanently established. His life was rich in work and affirmative results. With a somewhat more optimistic outlook upon life he might possibly have lived an even richer and happier life, but who knows. It cannot be said of all of us that we live up to our highest ideals and convictions, but this can be unhesitatingly said of our departed friend. He will live on in influence and in our memory. If we only knew, possibly we would not be sad when our friends depart for the Beyond, but most of us have not yet the power to see clearly enough to control the emotion of sadness upon an occasion like this. However, we must have the faith and the conviction that such men as Martin Wilbert have not lived in vain.

JOHN K. THUM.

It was my good fortune to meet Dr. Martin I. Wilbert the first week of my entrance into pharmacy. I was then a boy of sixteen years; he was ten years my senior; he impressed me at once with the fact that he was an unusual man. He was kind and helpful. Indeed, I have never met a man who was so willing to help others. And his patience! It was unlimited. There was nothing artificial about Dr. Wilbert; he was genuine all through. He was a real man and a true friend.

Like all truly great characters he was tolerant, modest, and unassuming; yet he was ever ready to stand up and fight for what he thought was right. He had ideals and he lived up to them. He possessed the faculty of criticism in a large degree but, unlike many critics, what he tore down he replaced with a better structure. He never seemed to be at a loss for ideas. It seems to me that the best way to sum up his life would be to say: He was one of the world's workers!

HENRY KRAEMER.

Mr. Wilbert's death has come so unexpectedly, that I doubt if any of us are prepared to summarize his work and form a due estimate of his character. It is a staggering blow to every interest with which he was connected. I never realized until now the great value of a human life and how inter-dependent we are on each other. He doubtless knew that he could not live many years, and so put into these few years all the energy he possessed. He cannot be replaced and his sudden death must put greater resolution into each of us to complete the work in which he had such great interest.

It is now little more than twenty-five years since Mr. Wilbert came from the farm to devote his energies in manifold services as the opportunities in a large city afford. Almost from the outset his work attracted attention, and I can still remember his earliest contributions to pharmacy. He did not work alone and saw that the greatest benefit to his profession could only accrue by associating with his fellows and receiving the stimulation that such fellowship afforded.

Mr. Wilbert was essentially a pioneer, and one could not be associated with him and not realize that he had a message of importance for his profession. He strove zealously to familiarize us with his dream of an ethical and dignified profession. Because of the possible briefness of his life, he was direct, yet circumspect. He was courageous and fearless, but always considerate and never ungracious. He was versatile and sympathetic with every phase of pharmaceutical work. He was a propagandist and believed in the value of discussion and the stimulation that resulted from associations through their meetings. He was modest and unassuming. He was approachable and ever ready to render assistance to every one who might call upon him. He never lost an opportunity to become informed and inform others of what they might do to elevate both pharmacy and medicine. He has completed his work here and performed the task well, and has entered the higher, eternal and immortal life.

C. LEWIS DIEHL.

Although I had known Mr. Wilbert before, my first intimate acquaintance with him dates from the time when (1907) I was interned in the German Hospital, Philadelphia, suffering from what was pronounced an attack of pneumonia. In common with other attachés of that model sanatorium, Mr. Wilbert endeavored during spare moments (often at a sacrifice) to comfort me, and in this way I learned that he was the responsible head of a model pharmacy, well equipped not only to compound the prescriptions, but also to conduct various operations requiring special scientific knowledge and skill.

When my convalescence was sufficiently advanced I was permitted to visit Mr. Wilbert in his pharmacy and, needless to say, I found it an ideal establishment. With well-trained subordinates the work went on with admirable regularity, strictly conforming to his instructions, but absolutely free from outside interference; and all this without an unkind word or undue self-assertion.

And when in 1910 I was given *carte blanche* to select the members of a Committee on National Formulary, one of the first names selected was that of Martin I. Wilbert, who has in all conditions promptly responded to the demands made on him.

In the sudden demise of Mr. Wilbert I feel a personal bereavement! May his ashes rest in peace is the devout wish of his friend.

WILBUR L. SCOVILLE.

Mr. Wilbert was an idealist and as such was often misunderstood. He had the ideal conception of practicability—that only those methods which are founded on adequate ideals can achieve permanent success. He was willing to wait for the development of such methods, and because he had the patience to develop slowly for the sake of soundness he was often deemed impracticable by less patient men. The idealist is to the practical man what the boiler is to the engine. It prepares for movement far ahead of the engine, and it furnishes power for the running, but it is less attractive to the senses and it does not evidence its power in vigorous and stirring ways. So it fails to get credit for the work it does because it is less attractive to men of action.

Mr. Wilbert was consistent in his idealism, and persistent in his efforts. He carried his ideals into the common and obscure events of his life. As an instance, about a year ago he was called to Philadelphia for a meeting of the National Formulary Committee. He took a train from Washington very early in the morning—before seven o'clock—and he left Philadelphia to return at eleven o'clock that night. His lunch and dinner were supplied in Philadelphia, but his bill to the Association was for his railroad ticket only. No Pullman seat, and not even a breakfast on the train, nor even city car fares, although he spent at least nineteen hours in the service of the Association that day. Just the actual price of his railroad ticket was his entire bill for expenses. This incident simply shows that he was both honest in his ideals and ideal in his honesty. It also illustrates his indifference to the "practical" in his life when it was purely temporary and selfish.

His industry was obvious, although that was not displayed. He not only never shirked when any work was put upon him, but he assumed responsibilities for which he received no credit. He was thus a valuable committee man, because he was zealous for the work and indifferent as to the credit for it. He was of great assistance in the National Formulary, because he was constantly on the lookout for errors and improvements. No member of the committee wrote as many special letters on this work as Mr. Wilbert, at least in the later days of the work. Some contained a single suggestion, and some several, but every suggestion was of value.

He never seemed to put off work, but attended to it at once. His promptness made his work the more valuable. And if the National Formulary is a credit to the Association, no small part of that credit is due to Mr. Wilbert.

One needed to work with Mr .Wilbert to appreciate him. His qualities were not of the surface type—quickly seen and winning,—but they had depth and dignity. One might not agree with his judgment, but one always respected him. He always had reasons for his position, and he was never superficial. Pharmacy is the better for his work, and his influence will be felt for some time to come.

GEORGE M. BERINGER.

Martin I. Wilbert is dead. Thus the distressing information came over the wire. Words fail to express the impression this announcement produced; the shock, the pall of loss and sorrow, the heart pang. Wilbert whose restless activity, intense earnestness and application was so manifest at our recent meeting in Atlantic City, has been called home. Grim angel hast thou entered our circle and in obedience to the bidding of the Infinite summoned our friend, this earnest worker in the field of science, to quit his earthly labors.

In awe, I stood at the bier and viewed his inanimate body. That form we knew so well is now still in death; the breathing stopped, the heart beat ceased, the mind henceforth inactive, the lips forever silent; his soul had crossed the bar. Though henceforth removed from our physical sight, he cannot be effaced from memory where his image will perpetually remain.

It is impossible to estimate the loss that pharmacy has sustained in the decease of this indefatigable worker. His love for his chosen profession and the sciences and history associated therewith, led him to delve into many avenues of study. The numerous contributions to the literature cover a wide range of subjects and testify to his versatility.

In the discussions of all of the important problems affecting pharmacy during the last decade, Martin I. Wilbert took a prominent part. Every work of importance, every question of interest that, in recent years, claimed the attention of the American Pharmaceutical Association, received likewise his earnest consideration and he assumed his full share of the labor. As an intense thinker, a tireless student, an earnest scientist and persistent worker, he maintained his position in the forerank as one of the most able, resourceful and efficient leaders of pharmacy. He was firm in his convictions, tenacious of his opinions, adherent to principles as he saw them and even, at times, when we could not agree with his conclusions we recognized the sincerity of his motive, the honesty of his purpose and the altruistic spirit of his labor.

I was associated with Mr. Wilbert in such important committees as the Revision Committees of the Pharmacopœia, the National Formulary, and that on Unofficial Standards, as well as many minor committees. I was always impressed that he was a man of high ideals and forceful character. His pointed arguments, his application to the service, his zealous work won the admiration and esteem of his co-workers. I am grateful for the opportunity of adding these few words of tribute to Martin I. Wilbert whose contributions and services to pharmacy are invaluable and whose name will be associated forever with its history.

S. L. HILTON.

In the demise of Martin I. Wilbert, I feel that I have lost a very near and dear friend and scientific pharmacy one of its most persistent and prominent workers. He stood as the champion for the highest attainments in scientific pharmacy and did more for its uplift than any other worker I know. He was a most unselfish worker, possessed of a rare combination of mind with the highest ideals, and his capacity for work was enormous. I feel that he might have been spared longer, if he had taken things easier, he felt, however, that he should do things, that he had work to accomplish, and knowing full well his true condition endeavored to accomplish as much as possible before he should be taken.

He leaves a vacancy. His place will be difficult to fill. We mourn his loss deeply but feel that he has received a just reward for work well done.

H. E. KALUSOWSKI.

Martin I. Wilbert was a personality in American Pharmacy who commanded attention by sheer force of intellect, endowed with a high order of analytic mind combined with an indefatigable capacity for work, joined with an unusual ability to present his conclusions with lucidity and conciseness, he attained a unique and influential position in pharmaceutical councils.

Alert and keen in his reasoning faculties he knew how to separate facts from shams and pretensions and to assign to each its proper weight and value.

In presenting his conclusions he may have sometimes seemed aggressive, it must, however, be said that he never provoked or engendered animosities.

In his extensive labors for pharmacy Mr. Wilbert was essentially constructive, his ideal was high, perhaps too high to see its immediate realization; a Scientific Pharmacy was his ideal and to promote it was the manifest purpose of his active life and from which he never deviated.

To those who were associated with Mr. Wilbert as well as those who knew his work there will come one thought, common to all, that in his untimely passing American Pharmacy has sustained a great loss.

E. G. EBERLE.

I have been seeking to describe what seemed most characteristic of Martin I. Wilbert, and I have arrived at the conclusion that it was *quiet energy*. With that he had a moral courage which never faltered, he frankly uttered his views on all matters pertaining to pharmacy, he disdained to conceal, and scorned through policy to qualify his opinions. I should also say, that every request for assistance from the JOURNAL was always promptly and cheerfully complied with.

JOURNAL AMERICAN MEDICAL ASSOCIATION.

Mr. M. I. Wilbert, of the U. S. Public Health Service, was one of the first men to become active in the organization of the Council on Pharmacy and Chemistry. He was interested in this body from its formation, and after it was established he continued to be one of its most tireless workers. Few know the sacrifices of time and efforts Mr. Wilbert made in connection with the Council work. His very life seemed to be wrapped up in bringing about better conditions both in pharmacy and in medicine. He was one of the few men who serve as connecting links between the two professions. He spent his life in trying to stem the tide of commercialism in both, and the full measure of his influence at Washington in behalf of the public health will never be fully known. * * * The loss is not merely the medical profession's; it is also the public's.

W. A. PUCKNER.

Wilbert's activities in connection with the American Pharmaceutical Association are so well known and they form so large a part of the Association's printed record, that praise of his work would be superfluous. It is also needless to discuss his unselfishness, for many know of the readiness to impart his great store of information to those who asked. His language and thought creep out in the published reports of the many committees of which he was a working member.

The pharmaceutical profession will, however, understand and appreciate Wilbert better if it knows that, though ever ready to expose the weak spots and shortcomings of pharmacy and pharmacists when before a pharmaceutical audience, elsewhere he was ever the friend and propagandist of the profession to which his life was devoted. Especially strong was he in medical gatherings in obtaining for pharmacy a due regard of its importance. During my twelve years of association with him on the Council on Pharmacy and Chemistry of the American Medical Association, I always found him with the deepest concern for the future of the profession, always keeping its advancement before him. The full measure of what he has done for the elevation and promotion of pharmacy in connection with his work on the Council, in the Public Health Service and elsewhere will, I fear, never be known.

One word more. While his efforts were often misunderstood and his activities criticised, Wilbert was never disheartened. A particularly severe and unfair attack in the pharmaceutical press invariably brought me a letter calling attention, good-humoredly, to this. He knew that he was on the side of right and that the attacks of his critics were the best argument for his actions.

ROBERT A. HATCHER.

Many of the readers of the JOURNAL will look upon anything that I can say of Mr. Wilbert as a mere commonplace, because his splendid qualities are as well known to them as to me, but I do earnestly hope that the many expressions of high appreciation of his character which are sure to follow his death may serve as an inspiration to those pharmacists of the younger generation who have not enjoyed the privilege of his acquaintance.

There are few ways in which the young can be stimulated to perseverance in uprightness amid temptations so effectually as by observing the reverence paid to the memory of one who was so unassuming and so peculiarly unselfish as Wilbert was.

It was my privilege to be closely associated with Wilbert in many ways during the past ten years, but it was not until the news of his death reached me that I realized that I knew very little of his personal history previous to his graduation from the Philadelphia College of Pharmacy; in other words, despite our intimate relations, I had seldom heard him speak of his purely personal affairs.

Others, better qualified than I, will pay tribute to his work in Pharmacy and Medicine and I can only contribute my mite to the volume of praise of his numerous splendid qualities that will be poured out on this occasion.

OLIVER T. OSBORNE.

It is with a feeling of personal loss that I am writing these few words of appreciation of Martin I. Wilbert. I have known him many years, and have exchanged very many letters, personal and technical, with him. It was always a pleasure to see him or to receive a letter from him. His ideals were of the finest, and his chemical and pharmacal knowledge was of the best, so that his advice in regard to scientific pharmacy and the scientific use of drugs was the best that could be obtained. He had the profound respect of all of the skilled pharmacists and medical practitioners who knew him. His death is a very great loss to both professions.

OBITUARY

GEORGE McKENZIE SUTHERLAND.

The death of George M. Sutherland, member of the California State Board of Pharmacy, is reported. We have not been given further information, but from the records we have Mr. Sutherland was born in San Francisco and was active as a pharmacist in San Francisco and Los Angeles for many years. During his earlier years of service as pharmacist, he was manager at Lingfeld's, Dugan's and other well-known pharmacies and was considered an expert prescriptionist. In 1907, Mr. Sutherland located in Alameda where he conducted the Sutherland Pharmacy. He was appointed to the California State Board of Pharmacy by Governor Pardee in 1905 and reappointed by Governor Gillette. He was president of the Board for two terms and also served as chairman of its Finance Committee. Mr. Sutherland joined the American Pharmaceutical Association in 1909. He leaves a wife and a son.

E. S. McKEE.

Edward Sidney McKee was born January 6, 1858, on a farm near Seven Mile, Ohio, about five miles from Hamilton. He was the youngest of thirteen children. His father and mother were of Scotch-Irish ancestry, living in the neighborhood of Cynthiana, Kentucky, until their removal to Ohio in 1845. Three of the doctor's great-grandfathers fought in the campaign of King's Mountain, the campaign that prevented the British forces from going to the assistance of Cornwallis, thereby hastening his surrender.

Dr. McKee's early life was spent on the farm and in attending country school. On completing his college course at Monmouth College, Illinois, he took up the study of medicine at the Medical College of Ohio, Cincinnati, O. Upon his graduation in 1880, he went abroad and served as an interne in the hospitals of London, Paris and Vienna for a year and a half. In the Spring of 1882, he returned to this country and began the practice of medicine in Cincinnati. On November 16 of that year he was united in marriage to Miss Anna Louise McClintock, of Collinsville, Ohio. Dr. McKee was reared in the United Presbyterian Church, but while living in Cincinnati held his church membership in the Second Presbyterian Church and later in the Walnut Hills Presbyterian Church.

Dr. McKee was never strong or rugged, and in the earlier years of his practice had to give up writing for medical magazines because of the effect on his health and the injury to his eyes. The last four years of his life he suffered from a nervous breakdown, and spent two years in traveling around the world. Because of the prospect of blindness in the near future, he planned to go to South America as his last trip. He left Cincinnati August 1, spending some time in the South, then in Cuba, Panama and Ecuador. He was ill when he reached Quito, October 6, and through the kindness of the United States Minister to Quito, was removed to a hospital, where he died October 20. The official report of his death stated as the cause "acute psychosis, and congestion of the lungs."

Dr. McKee's body was immediately shipped to his old home, the interment taking place November 18, in Greenwood Cemetery, Hamilton, Ohio, where all of his family are buried.

CHAS. A. APMEYER.

LINUS DANA DRURY.

Linus D. Drury, one of the older pharmacists of Boston, passed away after an illness of several months at his home in Roxbury, Mass., November 28, 1916. The funeral services were held at the Dudley Street Baptist Church and was largely attended by relatives, friends, and the representatives of societies and associations of which the deceased was a member.

Mr. Drury was born in Athol, July, 1850. He received his early education in his home town and thereafter entered the employ of J. H. Dyer. After graduating from the Massachusetts College of Pharmacy in 1871, Mr. Drury accepted a position with Joseph T. Brown, in the store where the late Prof. Geo. F. G. Markoe was for a time engaged. When the latter opened a store in Roxbury, Mr. Drury became manager of the business and later proprietor. A few years ago the firm was incorporated as the Linus D. Drury Corporation in which the deceased remained active.

Mr. Drury was a life member of the American Pharmaceutical Association, which he joined in 1871. He attended a number of the annual meetings, the last one in Denver, 1912. Mr. Drury was active in the Massachusetts College of Pharmacy, having served as trustee, president, vice-president, and auditor. He was a member of the Massachusetts State

Pharmaceutical Association and Boston Druggists' Association. Mr. Drury was prominent in the Masonic Order.

Mrs. Drury, Isadora York, survives him, and a son, Dana W. Drury, a prominent physician of Boston.

The deceased possessed a genial, sunny disposition, a character above reproach, esteemed by all who knew him and will be greatly missed in the community where he so long resided.

John G. Godding.

SOCIETIES AND COLLEGES

ANNUAL MEETING OF OFFICIAL AGRICULTURAL CHEMISTS.

The thirty-third annual convention of the Association of Official Agricultural Chemists was held in Washington at the New Willard Hotel, November 20–22. About 200 chemists from all parts of the country attended the sessions. The association heard many reports of referees on official methods of analyses for the use of the Federal and State officials, whose duty it is to enforce such laws as the pure food law, the feeding law and the insecticide and fertilizer laws.

Dr. Harvey W. Wiley reviewed the history of the organization.

The report of the committee on the revision of methods of analysis announced the revision will be published in book form during the year. This is the first complete revision of the methods of analysis in ten years.

Dr. C. L. Alsberg, secretary, made a report on the financial condition of the association's official journal, showing it to be in good condition and paying expenses.

Dr. William Frear, chairman of the Food Standards Committee, presented his report as the representative of the association upon the Committee on Definitions of Standards.

The revised list of referees appointed for the ensuing year to deal with products assigned and having relation to pharmacy follows:

Phosphoric acid, W. J. Jones and E. C. Shorey will co-operate on boric slag.

Nitrogen, H. D. Haskins.

Special study of Kjedahl method, A. L. Phelps, associate referee.

The microscope as an aid to analysis, B. J. Howard.

Drugs, W. O. Emery.

Medicinal plants, A. Viehoever.

Alkaloids, H. C. Fuller.

Synthetic products, H. W. Wright.

Medicated soft drinks, P. J. Hubbard.

Balsams and gum resins, L. M. Merrill.

Enzymes, V. K. Chestnut.

Testing chemical reagents, C. O. Ewing.

THE METRIC CONFERENCE.

A meeting of the Metric Conference is to be held in New York City during the last week of this month. The conference will begin its work in an open meeting with the Section on Social and Economic Science of the American Association for the Advancement of Science, under the direction of its retiring Chairman, Dr. George F. Kunz, at which time, prominent speakers will point out the desirability of the United States becoming a metric country.

Dr. H. V. Arny is chairman of the Metric Committee of the American Chemical Society, Caswell A. Mayo is one of the representatives of the American Pharmaceutical Association. Quite a number of national trade and scientific associations will participate.

ILLINOIS PHARMACISTS MEET TO DISCUSS LEGISLATION AND OTHER MATTERS OF PHARMACEUTICAL INTEREST.

Prominent pharmacists of Illinois met November 20, in Chicago, to discuss legislative matters and also the cultivation of drugs in Illinois.

The proposed amendments to the pharmacy law were considered. These are to prevent the distribution of dangerous drugs by unlicensed peddlers and one increasing the educational qualifications required by the State law for the admission to practice pharmacy. Resolutions were adopted favoring the necessary amendments of the State laws in these matters.

The plan to test the drug growing strength of Illinois was announced by Prof. W. B. Day, dean of the School of Pharmacy.

"Already we have had some success raising belladonna," said the dean. "Mrs. Helen D. Duesner, of Batavia, raised two acres of belladonna last year and made $1500 profit. Our students are going to make similar experiments and we are going to try to interest farmers."

The members of the committee also discussed the Harrison law. Approval of the law was unanimous among the pharmacists, but several speakers declared that, to make it fully effective, State legislation along similar lines was needed, and it was decided to urge the passage of such legislation by the next General Assembly.

REFERENDUM VOTE IN STATE OF WASHINGTON SHOWS THAT PHARMACISTS ARE OPPOSED TO SALE OF ALCOHOLIC LIQUORS IN DRUG STORES.

Referendum vote seems to be the order of the day, Minnesota voted on prerequisite legislation and Washington on the sale of liquors in drug stores. At the last meeting of the Washington State Pharmaceutical Association, it was decided to submit the question to a referendum vote. H. G. Duerfeldt and E. L. Jones of Spokane, and E. L. Smalley of Walla Walla, were elected a committee to conduct this vote. This committee mailed to every pharmacist registered in Washington who was also a resident of the state, a ballot worded as follows: "Do you favor a law which will remove from the drug store all alcoholic liquors except alcohol (this to be used for manufacturing only) and also a repeal of the twenty-five-dollar state tax?" The result of the vote has just been reported by the committee, and is given below in tabulated form:

	Yes.	No.
Big Bend and Central State	12	3
North of Spokane	7	7
South of Spokane, Asotin and Whitman Counties	21	6
Spokane, Hillyard and Cheney	30	8
Walla Walla Territory	13	11
North Yakima to Pasco	14	8
Wenatchee and Okanogan	14	2
Everett, Granite Falls and Monroe	9	7
All north of Everett	33	15
Seattle and near towns	93	65
Tacoma, Olympia, etc	43	27
Vancouver, Aberdeen	35	15
Totals	324	174

KING'S COUNTY PHARMACEUTICAL SOCIETY.

The chief topic of discussion at the monthly meeting of the King's County Pharmaceutical Society, November 14, was contemplated legislation. Dr. William C. Anderson reporting thereon stated that a general revision of the Harrison law and the Boylan law, passed by the New York Legislature to curb the drug evil so prevalent in certain sections of the State was under consideration. Dr. Anderson said:

"It is possible for narcotics to be obtained from Canada by way of Niagara Falls and there into the hands of peddlers. These people do not deal in grains or ounces but in pounds and their underhand work is going on now.

"A way must be found to check them. Some druggists refuse to fill narcotic prescriptions because of the inconvenience and the risk of making some technical errors."

Jacob Rehfuss said he had heard that narcotics were exported to Mexico and from there smuggled into adjoining states.

Adrian Paradis stated that there should be national legislation to prevent the importation and smuggling of narcotics from foreign countries.

All the members claimed that the Boylan law was hindering their business, and that the real mischief maker, the peddler of narcotics, is still at work. It was claimed that habitual users of morphine and other narcotics, and cancer victims, absolutely must have narcotics, but when a druggist puts up a prescription for these classes of people, who must have a larger amount than the ordinary prescription calls for, the inspector promptly hauls him to court even though he has kept to the letter of the law.

Compulsory medical insurance was also discussed by Dr. Anderson.

NEW BUILDING FOR THE COLLEGE OF JERSEY CITY.

At the November meeting of the College of Jersey City, President James E. Pope, presented the plans for the new building, which is to be erected in the spring of 1917 on the College grounds. The plans represent a handsome structure in Colonial style, to cost about $30,000. The building will be three stories high and will contain a large auditorium, two class-rooms, four spacious laboratories, library, offices, locker-rooms, students' quarters and dental clinic. The new building will occupy the entire length of the lot on Summit Avenue and will be placed in such a way so as to leave a campus in front of the building, which will occupy a space of 200 by 100 feet.

UNIVERSITY OF MAINE.

The College of Technology of the University of Maine conducts, in connection with its extension evening classes in the Portland High School, a series of lectures on Pharmacy and allied subjects, intended for practicing physicians, and others. The lectures will for the most part be given by Prof. Wm. A. Jarrett, of the Department of Pharmacy in the University.

The first lecture was given November 23, in the auditorium of the Portland High School, on the Ninth Decennial Revision of the U. S. Pharmacopœia.

THE PHARMACIST AND THE LAW.

COMMISSIONER OF INTERNAL REVENUE RECOMMENDS AMENDMENTS FOR THE HARRISON LAW.

Commissioner Osborne recommends that the Harrison law be amended or revised to provide:

"First. A tax on the drugs, with provision for original stamped packages evidence of non-payment of the tax and violation of the law, except where such packages contain drugs put up upon prescriptions issued for legitimate medical purposes by a registered practitioner, and to make the possession of an original stamped package by any person not registered prima facie evidence of non-payment of special tax and violation of the law.

" Second. That the limitations as to registration under the act be clearly set forth and restricted to persons lawfully engaged in the sale of or dispensing, administering, or prescribing the drugs covered by the act, and that the writing of prescriptions, keeping records, altering or forging same, be fully covered with adequate provision for punishment of such offenses.

" Third. Making all the general provisions of the internal revenue statutes relating to seizures, forfeiture, etc., applicable to the drugs taxed and the persons upon whom special taxes are imposed under this act."

He also recommends "that Congress provide for the treatment by the government, through some designated medical agency, of the persons addicted to the use of any of the prescribed drugs where such treatment may be rendered necessary and the persons affected desire this aid."

NEW YORK STATE NARCOTIC COMMISSION STARTS INVESTIGATION.

The New York State Narcotic Commission began actual work of investigating the narcotic drug situation in New York, December 4.

The resolution under which the committee is to act sets forth that it is " to investigate and examine into the laws of the State in relation to the distribution and sale of habit-forming drugs, the manner in which such laws are enforced, the laws of other States and jurisdictions upon the subject, and the measures which should be taken whereby the restrictions upon the distribution and sale of such drugs may be more effectively enforced."

The committee will be clothed with the power to subpoena and compel the attendance of witnesses, and to require the production of books and papers. It must report to the next Legislature before February 1, including with its report such recommendations as to legislation as it may deem proper. The Legislature appropriated the sum of $5000 to cover its expenses.

ENGLISH COURT HOLDS THAT OWNERSHIP OF THE PRESCRIPTION DOES NOT PASS TO THE PATIENT.

A court in England has decided that the ownership of a prescription does not pass to the patient. The points of the case are as follows:

A woman consulted a physician who gave her a prescription which she took to a firm of pharmacists to be dispensed. The prescription was not returned to her, and when her husband asked that it should be, this was refused, the pharmacists stating that they had undertaken at the request of the physician not to return his prescriptions to patients unless they were expressly authorized by him to do so. An action was brought by the husband against the pharmacists for the return of the prescription. In giving evidence, the physician stated that the course adopted by him with regard to prescriptions was taken for the protection of the public. He illustrated the danger of allowing prescriptions to be retained by the patient by saying that not infrequently a medicine ordered for an adult was given, without any physician being consulted, to an infant. He had requested pharmacists to inform him whenever a patient asked for the return of a prescription, and he made a practice of writing on prescriptions which might properly be handed back without question the words "Return to patient." The lawyer for the defendants pointed out that the prescription was of no value to them, and that they were only contesting the case on the question of principle and in order to keep faith with the medical profession. The judge held that no property in the document had passed to the plaintiff as the prescription had been handed to the patient only in order that it might be conveyed by her to the pharmacists to be made up instead of the medical man himself sending it. The claim, therefore, was dismissed with costs.

VIRGINIA ADVERTISING LAW.

Sec. 1. Be it enacted by the general assembly of Virginia, That any person, firm, corporation or association or any agent thereof who, with intent to sell or in any wise dispose of merchandise, securities, service, or anything offered by such persons, firm, corporation, or association, directly or indirectly to the public for sale or distribution, or with intent to increase the consumption thereof, or to induce the public in any manner to enter into any obligation relating thereto, or to acquire title thereto, or any interest therein, with fraudulent intent makes, publishes, disseminates, circulates, or places before the public, or causes directly or indirectly, to be made, published, disseminated, circulated, or placed before the public in this State, in a newspaper or other publication, or in the form of a book, notice, handbill, poster, blue print, map, bill, tag, label, circular, pamphlet, or letter or in any other way, an advertisement of any sort regarding merchandise, securities, service, land, lot, or anything so offered to the public, which advertisement contains any promise, assertion, representation or statement of fact which is untrue, deceptive or misleading, shall be guilty of a misdemeanor, and, upon conviction thereof, be punished by a fine of not less than twenty-five dollars, nor more than two hundred and fifty dollars, or confined in jail for a period of not less than ten days, nor more than sixty days, or by both such fine and imprisonment.

CHANGES OF ADDRESS

All changes of address of members should be sent to the General Secretary promptly.

The Association will not be responsible for non-delivery of the Annual Volume or Year Book, or of the Journal unless notice of change of address is received before shipment or mailing.

Both the old and the new address should be given thus:

Henry Milton,
From 2342 Albion Place, St. Louis, Mo.
To 278 Dartmouth St., Boston, Mass.

Titles or degrees to be used in publications or in the official records should be given, and names should be *plainly* written, or typewritten.

CHANGE OF ADDRESSES SINCE OCTOBER 18, 1916.

Zuck, F. J.,
From Forest City Bank, Lawrence, Kans.
To 1028 Missouri St., Lawrence, Kans.

Beal, J. H.,
From 801 W. Nevada, Urbana, Ill.
To Camp Walton, Fla.

Carroll, B. H.,
From Colville, Wash.
To St. Maries, Idaho.

Moulder, L.,
From 1429 Ocean Front, Santa Monica, Cal.
To Lin Creek, Mo.

Shaffer, Martin L.,
From 2908 15th Ave., Seattle, Wash.
To 310 Jackson St., Seattle, Wash.

Bumbera, J. E.,
From 1213 Washington Ave., Braddock, Pa.
To 2022 Noble St., Swissvale, Pa.

Heller, C. T.,
From 31 W. 10th St., St. Paul, Minn.
To 484 Wabasha St., St Paul, Minn.

Adams, D. B.,
From Warren, Ind.
To Residence Unknown.

Youngken, D. W.,
From 2500 Jefferson St., Philadelphia, Pa.
To 2621 Girard Ave., Philadelphia, Pa.

Cone, A. I.,
From 122 East 74th St., New York, N. Y.,
To Hotel Wellington, 7th Ave. and 56th St., New York, N. Y.

DECEASED SINCE OCTOBER 18, 1916

Sutherland, G. M.,
Alameda, Cal.

Wilbert, Martin I.,
Washington, D. C.

UNITED STATES PUBLIC HEALTH SERVICE

List of Changes of Duties and Stations of Commissioned and Other Officers of the United States Public Health Service, for the seven days ended November 22, 1916.

Pharmacist E. S. Maguire. Relieved at Marine Hospital, Evansville, Ind. Report at Marine Hospital, Detroit, Mich. November 18, 1916.

Pharmacist E. J. Thurston. Relieved at Marine Hospital, Vineyard Haven, Mass. Proceed to Marine Hospital, Chelsea, Mass. November 21, 1916.

Pharmacist G. A. Morris. Relieved at Marine Hospital, Detroit, Mich. Proceed to Marine Hospital, Evansville, Ind. November 18, 1916.

Pharmacist L. W. Ryder. Proceed to Gulf Quarantine Station to assist in the transfer of the boarding and inspection of vessels from Ship Island to Gulfport, Miss. November 21, 1916.

Pharmacist T. C. Armstrong. Relieved at Marine Hospital, Stapleton, N. Y. Proceed to Marine Hospital, Vineyard Haven, Mass. November 21, 1916.

Scientific Assistant A. R. Howard. Proceed to establishments of the General Chemical Company. Make studies of occupational diseases. November 16, 1916.

Professor C. W. Stiles. Proceed to New Hanover, Robeson and Columbus Counties, N. C. Make studies of methods and results of sanitation in those communities. November 7, 1916.

Pharmacist F. L. Gibson. Relieved at Marine Hospital, Cleveland, O. Proceed to Washington, D. C., for duty in the Bureau. November 2, 1916.

WAR DEPARTMENT

List of changes of stations during November, 1916, in the cases of Sergeants First Class, and Sergeants, Medical Department.

SERGEANTS FIRST CLASS.

Daniel W. Robinson, from the Remount Depot, Ft. Reno, to Ft. Sam Houston.

William McFarland, from Ft. Yellowstone, to the Southern Department.

SERGEANTS.

George Brown, from Columbus Barracks, to Jackson Barracks.

Walter G. Witt, from Columbus Barracks, to the Southern Department.

Paul W. Holmes, from Columbus Barracks, to Fort Omaha.

Thomas O. Williams, from Fort Yellowstone, to the Southern Department.

Ignatius B. Thomas, from Jackson Barracks, to the Army Medical School, Washington, D. C.

William R. Mitzlaff, from the Southern Department, to the Letterman General Hospital.

BOOK NOTICES AND REVIEWS

Histology of Medicinal Plants. By William Mansfield, A.M., Phar.D., Professor of Histology and Pharmacognosy of the College of Pharmacy of the City of New York, Columbia University. A practical scientific book on vegetable histology for the use of teachers and students in schools and colleges; also for all others who are interested in this work; 316 pages, 127 plates, cloth, $3.00 net. John Wiley & Sons, Inc., 432 Fourth Ave., New York City, publishers.

This book is intended primarily for the beginner who has never used a microscope of any kind. Accordingly, the first fifty pages are devoted to a very simple description of the mechanical and chemical materials which may be used in connection with a microscopical study of the histological elements of plant drugs. Descriptions of the mechanical apparatus are profusely illustrated by cuts, some of which appear superfluous, as, for example, those of cover glasses, slides, scissors, scalpels and the like.

While a fairly complete list of reagents is given it is unfortunate that more information concerning the composition and strength is not furnished. Chloral Hydrate solution as a clearing agent is, moveover, entitled to a place on every plant histologist's table.

The paragraph on the long paraffin process of embedding tissues for cutting is altogether too brief for the amateur. Without more explicit information he would probably come to grief when he proceeded to " place small fragments of a leaf, stem, or root tip, in " chromic-acid solution, acetic alcohol, picric acid, and chromacetic acid," since nothing is said as to the concentration and proportion of these solutions.

Part II is devoted to tissues, cells, and cell contents. One is at once impressed by the unique method of treatment in this portion of the book. Contrary to the customary method, the author discusses various sorts of specialized tissues for about one hundred pages and then takes up simple parenchyma. In other words the author begins with the complex and proceeds to the simple.

Part III treats of the histology of roots, rhizomes, stems, barks, woods, flowers, fruits and seeds. Here no attempt is made to cover the histology of the most important drugs which might be included in this portion of the book, but only such as show conspicuously the structures and cell contents which should be emphasized.

Throughout parts II and III there are many very excellent illustrations of tissues, cells, and cell contents, many of them entirely new and all of them from original drawings by the author. This is the most valuable feature of the work and will serve of material value for purposes of reference.

Errors in spelling are found here and there, as well as a few loose and vague statements, but these are not at all unexpected in a first edition. Mechanically the book is all that could be desired and taken as whole beginners in the study of the histology of medicinal plants will find this work of real assistance. J. S.

Latin for Pharmacists. By George Howe, Ph.D., Professor of Latin, University of North Carolina, and John Grover Beard, Ph.G., Assistant Professor of Pharmacy, University of North Carolina. P. Blakiston's Son & Co., Philadelphia, Publishers. 136 pages; cloth; price $1.

This is the first edition of the book and the authors have profited by other courses of teaching Latin to pharmacy students and combined with that the experiences of their own study and practice. The book is written for the student in pharmacy, not to give him thorough instruction in Latin but for the purpose of qualifying him to use it rightly in connection with his work.

The authors have adopted the English pronunciation of Latin which is an improvement over some of the works of this kind that do not prescribe a uniform method of pronunciation. A little more attention might have been given to this subject, especially, in view of the fact, that it is written for those who have not studied Latin in the schools.

The book is divided into two parts, the first consists of nineteen lessons presenting, in progressive arrangement, instruction in forms and syntax and to each lesson has been added a vocabulary and a double set of exercises, one for translating Latin into English and the other English into Latin. A series of these lessons deal with the writing and reading of prescriptions. The second part contains word classifications, a list of the abbreviations in common use, an analysis of the pharmaceutical terminology and a dictionary of words commonly used in the drug store. The purpose of the book has been quite closely kept in mind.

A Treatise on Pharmacy. For Students and Pharmacists. By Charles Caspari, Jr., Ph.G., Professor of Pharmacy in the Department of Pharmacy of the University of Maryland (Maryland College of Pharmacy, 1884–1904). Fifth edition, enlarged and revised. Octavo, 929 pages; illustrated with 337 engravings; cloth; $4.75, net. Lea & Febiger, Publishers, Philadelphia and New York, 1916.

The new edition of this well-known work, made necessary by the publication of the U. S. P. IX, has just made its appearance. In general outline it resembles previous editions. The author, apparently, was somewhat loath to accept the term " mils " for Cc., as throughout the work wherever one is mentioned, the other is given in parenthesis.

In view of the fact that the book is intended primarily as a text-book for students in pharmacy, it seems strange that so many official Latin titles are omitted. A list of both Latin and English pharmacopœial and National Formulary titles is found at the head of every chapter on gelanicals. The same is true of the chapters on inorganic salts, but Latin titles are missing in those chapters dealing with organic compounds.

Especially valuable are the Special Remarks immediately following the consideration of a class of official preparations. They supply the kind of information that the student of pharmacy should have. The whys and wherefores, the avoidance of the difficulties that are liable to be encountered in the making of preparations are given so lucidly in Prof. Caspari's surpassing style, that it makes the work stand in a place by itself.

Formulæ themselves are not given verbatim, but are concisely outlined; constituents are named, sometimes quantities are given, and usually the process of manufacture; but never in such a way as would permit the use of the book in lieu of the U. S. P. or N. F.

As in previous editions no consideration is given to the many official vegetable drugs, except as these are mentioned as sources of alkaloids, glucosides, neutral principles, etc. Many of the drugs of animal origin are likewise overlooked.

Unfortunately, owing to the apparent haste in which the volume has been revised and published, a few errors have crept in regarding new things and changes. These will likely be corrected in subsequent editions. Mention of a few of these will serve to illustrate this point. For instance, Acidum Phenylcinchon*in*icum, the official title of the substance sold for so long under its copyrighted title "Atophan," is referred to as Phenylcinchonic acid. Possibly these titles are in this instance considered as synonymous, but if the pharmacopœial title is correct then the use of the latter title is misleading. The fact that Liquor Cresolis Compositus is now made by a slightly modified formula is properly noted in the body of the work; but under the discussion of Cresol, where mention of the same preparation is made, the change is apparently overlooked, as the U. S. P. VIII process is given in abstract.

Aside from the few criticisms offered the work ranks high in comparison with others on the same subject and is full of valuable information for students in pharmacy.

LOUIS SAALBACH.

REPORT OF THE BOARD OF CANVASSERS, AMERICAN PHARMACEUTICAL ASSOCIATION, ON OFFICERS-ELECT.

While the December JOURNAL was still on the press we received the following report:

"The Board of Canvassers of the American Pharmaceutical Association met Monday evening, December 11, and counted the ballots cast in the annual election. The following having received a plurality of the votes cast are elected: President, Charles Holzhauer, Newark, N. J.; First Vice-president, Alfred R. L. Rohme, Baltimore, Md.; Second Vice-president, Leonard A. Seltzer, Detroit, Mich.; Third Vice-president, Theodore J. Bradley, Boston, Mass.; Members of the Council, Frederick J. Wulling, Minneapolis, Minn.; George M. Beringer, Camden, N. J.; Thomas F. Maine, New York City.

Respectfully submitted,
Signed, A. D. THORBURN,
FRANCIS E. BIBBINS,
FRANK H. CARTER,
EDWARD W. STUCKY.

JOURNAL ANNOUNCEMENTS.

Subscriptions: Annual subscriptions in advance, including postage: United States and Mexico, $4.00; Canada, $4.35; foreign countries, $4.50. Single copies, 35 cents. Remittances should be made payable to Treasurer H. M. Whelpley, but mailed to JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 253 Bourse Building, Philadelphia, Pa. Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers.

Requests for Back and Missing Numbers: Requests for back and missing numbers should be sent to the Editor. Claims will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from date of issue. Notice of change of address should give old and new address.

Contributions: The JOURNAL accepts no responsibility for the opinion of its contributors. Contributions should be sent to the Editor; use only one side of the sheet for writing, and double-space the lines. Articles are accepted for publication on condition that they are contributed solely to this JOURNAL; and "all papers presented to the Association and its Branches shall become the property of the Association, with the understanding that they are not to be published in any other publications than those of the Association, except by consent of the Committee on Publication." (By-Laws, Chapter X, Article 11.)

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Membership: Applications for membership in the American Pharmaceutical Association may be made of any of the officials. The annual payment of five dollars covers the annual dues and subscription to the JOURNAL. Members receive, also, the publications of the Association that are distributed free of charge.

Further information will gladly be furnished by any of the officers of the Association and members.

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SHOW YOUR INTEREST IN PHARMACY.

Honorary President, J. O. BURGE, suggests that members of the American Pharmaceutical Association should profit by their membership in this organization. He suggests the use by members of the insignia on their stationery and prescription blanks. Efficiency on the part of the member will make this mark indicative of, and become associated with, reliable pharmaceutical service.

If there is a desire on the part of members for such a cut, the JOURNAL will have type made, about the size of the one shown. The price of the cuts, including cost of mailing, will be fifteen cents each.

Please let us hear from you, so we may determine whether the expense of having the type made is warranted.

MEMBER
A.Ph.A.

THE JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION
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Vol. 5. (1916)

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